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DECEMBER 24, 1951

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Season's Greetings

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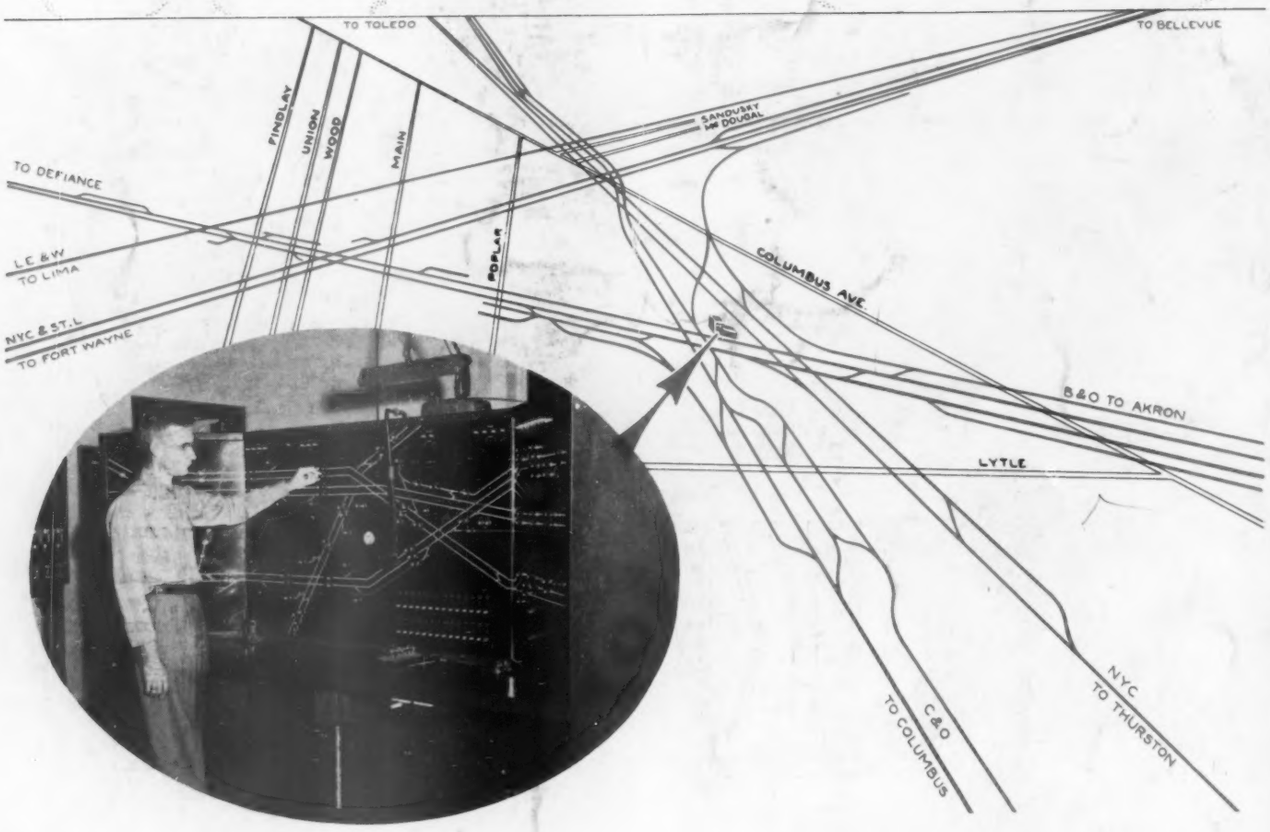

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3. speeded up freight train movement by 9,400 hours per year
4. reduced pulled drawbars
5. saved enough to pay for installation in 2⅓ years

These facts are from the report of A.A.R. Signal Section, Committee I, Economics of Railway Signaling, published in the A.A.R. Signal Section Proceedings, Volume XLVIII, dated September 1951.

Your G-R-S district office will gladly furnish you data and estimates on NX.

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Greetings of the Season

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AIR BRAKE DIVISION

WILMERDING, PA.

Vol. 131, No. 26 December 24, 1951

RAILWAY AGE

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Published weekly by the Simmons-Boardman Publishing Corporation at Orange, Conn., and entered as second class matter at Orange, Conn., price, $3.00 a year to railroad employees only in U. S., U. S. possessions and Canada, payable in advance and postage free. Subscription price to railroad employees elsewhere in the Western Hemisphere, $10.00 a year; in other countries, $15.00 a year. Two-year subscriptions double the one-year rate. Single copies 50¢, except special issues $1. Address Robert G. Lewis, Assistant to President, 30 Church Street, New York 7.

Editorial and Executive Offices at 30 Church Street, New York 7, N. Y., and 79 West Monroe Street, Chicago 3, Ill. Washington 4, D. C.: 1081 National Press Building—Cleveland 13: Terminal Tower—Portland 5, Ore.: Terminal Sales Building—Los Angeles 17: 1127 Wilshire Boulevard—San Francisco 4: 1204 Russ Building—Dallas 4: 2909 Maple Avenue.

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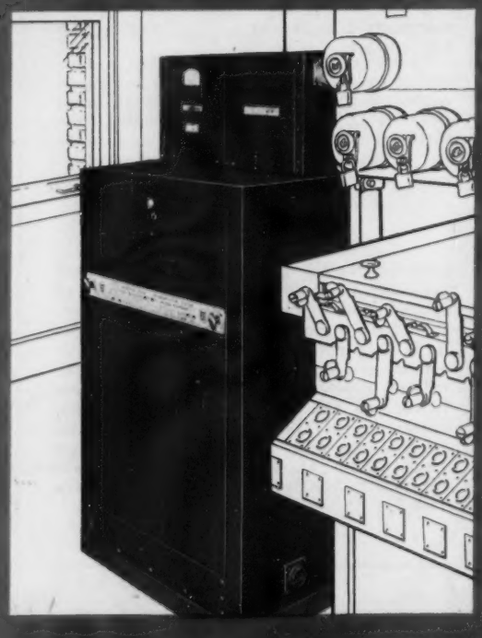
Railway Engineering & Maintenance Cyclopedia American Builder
Railway Engineering & Shipping Review Marine Catalog & Buyers' Directory
Books covering transportation and building

Railway Age is a member of Associated Business Publications (A. B. P.) and Audit Bureau of Circulation (A. B. C.) and is indexed by the Industrial Arts Index and by the Engineering Index Service. Printed in U. S. A.

AT HOME ON THE RAILROAD

"UNION" I.T.C.!

Wayside apparatus includes means for connecting recording apparatus.



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The wayside apparatus is an example. It consists of the usual necessary facilities . . . including two receivers and two loudspeakers with the two-frequency system. But in addition, it has *extra* features which "belong" in a wayside office, such as key-controlled circuits in the control station to permit: the use of the operator's regular desk set for normal communication with trains and the connection of an accessory handset for special purposes such as maintenance testing; and jacks for patching either receiver into the dispatcher's line.

Our representatives can tell you about other important features of "Union" I.T.C., too, including the use of plug-in components throughout the system, and means for connecting recording apparatus at wayside offices. For full particulars, call or write any of our district offices.

UNION SWITCH & SIGNAL

DIVISION OF WESTINGHOUSE AIR BRAKE CO.

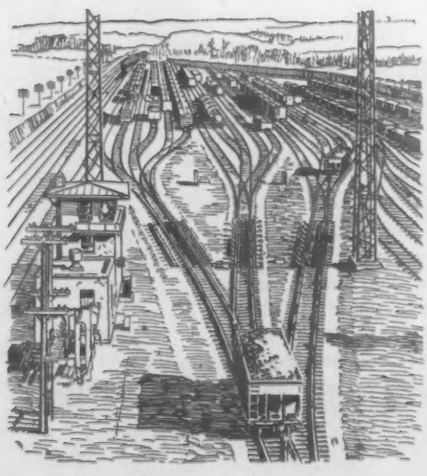
SWISSVALE PENNSYLVANIA

NEW YORK ST. LOUIS CHICAGO SAN FRANCISCO

WEEK AT A GLANCE

CURRENT RAILWAY STATISTICS

Operating revenues, ten months	
1951	$ 8,584,113,380
1950	7,683,079,585
Operating expenses, ten months	
1951	$ 6,719,696,853
1950	5,795,212,937
Taxes, ten months	
1951	$ 982,295,028
1950	922,105,384
Net railway operating income, ten months	
1951	$ 712,734,472
1950	815,072,304
Net income, estimated, ten months	
1951	$ 476,000,000
1950	577,000,000
Average price railroad stocks	
December 18, 1951	54.15
December 19, 1950	54.33
Car loadings, revenue freight	
49 weeks, 1951	38,570,614
49 weeks, 1950	36,779,914
Average daily freight car surplus	
Week ended December 8, 1951	7,775
Week ended December 9, 1950	7,611
Average daily freight car shortage	
Week ended December 8, 1951	4,316
Week ended December 9, 1950	12,123
Freight cars delivered	
November, 1951	9,824
November 1950	5,791
Freight cars on order	
December 1, 1951	129,158
December 1, 1950	126,870
Freight cars held for repairs	
November 1, 1951	91,726
November 1, 1950	102,899
Net ton-miles per serviceable car per day	
September 1951	1,074
September 1950	1,084
Average number railroad employees	
Mid-October 1951	1,271,809
Mid-October 1950	1,291,549



In This Issue . . .

THIS WEEK'S NEWS includes such items as the B. & O.'s arrangement to lease 55 new diesel-electric locomotive units from Equitable—C. L. Patterson's move from the L.V. (where he is succeeded by James J. Swift) to the D.M. & I.R.—the Erie's "last big bite" toward complete dieselization, with authorization for 42 additional units—Donald Gordon's address to the Toronto Railway Club, stating that Canadian railways may go into truck transport, "to give the public the full benefit of coordinated techniques" —Bell, of Seaboard, joins select ranks of passenger traffic "v-ps"—innovations "to promote simplicity" to feature new class tariffs—December 1 locomotive order backlog 1,809 units—I.C.C. report on two-wheel hand brakes on diesels.

CONTROL—I. E., REDUCTION—of operating costs by every possible legitimate means constantly becomes more and more important, as uncontrollable elements of cost are steadily increased by government action and/or other factors. One means of cost control, to which perhaps not enough attention has been paid, is systematic annual and monthly departmental and system budgeting. A suggested method of such budgeting, outlined on pages 38-40, will, we hope, focus attention on the possibilities, and perhaps inspire constructive comment.

TRAVELING SPRAY BOOTHS, which move along the sides of cars, are the Pullman Company's latest device to permit efficient, low-cost painting of passenger cars. The new booths, designed by the De-Vilbiss Company, are described and illustrated, and their operation and advantages outlined, starting on page 29. They can be used in spray painting interiors as well as exteriors.

YOU MAY GET SUCKED IN, but it won't be by a streamline train, according to the technical analysis of air motion around such trains by V. L. Streeter and R. S. Hartenberg (page 41). The authors say that, contrary to popular belief, there are no air pressures or currents which tend to draw objects into or under such trains.

In Washington . . .

"VICIOUS RIVALRY" AMONG DIFFERENT LABOR UNIONS is the sole cause of many of the present demands being made on the railroads by leaders of their organized employees, J. M. Symes, executive vice-president of the P.R.R., told the emergency board hearing the B. of L.F. & E. wage-rules dispute last week. The board, spurned by

WEEK AT A GLANCE

the firemen, concluded taking carrier testimony, and adjourned its hearings, hopeful of preparing its report by January 15. The other emergency board, hearing the "non-ops" union-shop case, completed taking union testimony and adjourned to January 7 at Chicago, where it will hear the carriers. A round-up story on pre-holiday labor developments appears on page 11.

PROGRESS on the Transportation Association of America's "National Cooperative Project" was reported at a December 18 meeting. The final report, however, probably won't be ready for actual submission to Congress until toward the end of next year, at the earliest, according to Donald Conn, T.A.A. executive vice-president, whose statement on the subject is reported in the news.

. . . And Elsewhere

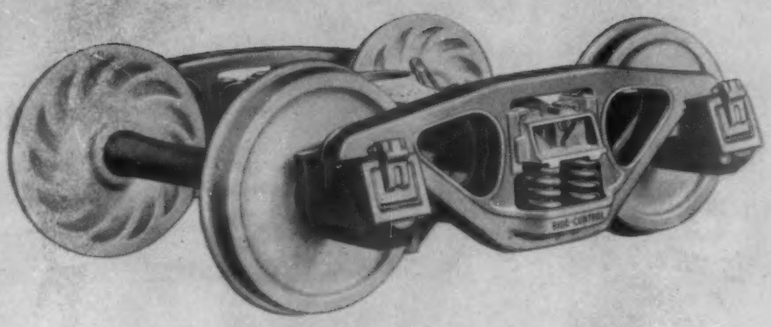
STABILIZED YEAR-ROUND EMPLOYMENT for all Southern Pacific employees—so far as it can be possibly attained—is the newly-stated aim and objective of S.P. management. Donald J. Russell, president-elect of the company, revealed this intention during a tour of certain key points along the system in the company of retiring President A. T. Mercier. Speaking before several thousand employees at Sacramento, Cal., Mr. Russell explained that every effort will be made to curtail layoffs for seasonal or other temporary conditions. His statement was greeted with a great ovation.

"CHESSIE," the drowsy kitten made famous by the Chesapeake & Ohio, will be a welcome guest in many homes this Christmas—adorning gifts with appeal for young and old alike. The C.&O. has authorized "Chessie" to be used in colored silk scarves in two sizes, pin-up lamps, men's silk neckties, children's T-shirts, creeper suits, "small fry" stationery and cat dolls.

"SHOUTS OF 'NO STEEL!' are a distortion of the picture. It isn't shortage of steel that's the trouble. It's bad distribution. There's all the steel the country needs, both for defense and to support a thriving civilian economy . . . The ultimate cure will come when steel distribution, other than that required for direct military needs, is handed back to the steel industry."—*A. B. Homer, president, Bethlehem Steel Company.*

THERE IS NEITHER RHYME NOR REASON in methods used by the 48 states to assess "taxes" against heavy commercial motor vehicles, according to a recent study by New York state's Joint Legislative Committee on Highways, Canals and Revenues. Moreover, the study shows there is no semblance of fairness in relative taxes assessed against private automobiles, light trucks and heavy trucks. On a national average, for example, the owner of a small passenger car, such as a Plymouth, pays 34.4 cents per 100-ton miles of travel; the average 6,000-lb. truck pays 36.01 cents. But the average 20-ton truck pays only 14.7 cents, and the average 30-ton truck only 12.4 cents, for each 100 ton-miles. Taxes on 20-ton truck combinations vary from a low of $490 a year in New Jersey—all fees included—to a high of $1,947 in North Carolina. Other low-fee states are Delaware, Pennsylvania, Rhode Island, Massachusetts, Maryland, Connecticut, Vermont and Maine.

"THE DIFFICULTY in the transportation industry . . . lies in the departure from the spirit of the statement of transportation policy in the formulation and execution of regulatory policies and promotional activities." That is only one of the many quotable statements which U. S. Senator John W. Bricker, of Ohio, made at the regional transportation conference sponsored by the U. S. Chamber of Commerce in Cleveland week before last. Other remarks by Senator Bricker, and a full panel of other speakers as well, appear in the conference report, beginning on page 34.



THE A·S·F RIDE-CONTROL TRUCK
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More Users buy more A-S-F Ride-Control Trucks than all other trucks combined...because Ride-Control® is smooth-riding, long-lasting--cuts operating costs!

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Today, the steel business is your business

—*it needs all your SCRAP, Now!*

SUPPOSE that every steel user were suddenly told that he had to turn in a half-ton of scrap before he could get a ton of steel. It would start the most gosh-almighty treasure hunt for scrap that ever happened.

In effect, this "no-scrap, no-steel" situation virtually exists. For without *all* the scrap that industry can search out and start on its way to the mills, steel production will surely drop. It's as serious as that.

More scrap is urgently needed. Today the mills are turning out more steel than ever before. But they're scraping the bottom of the barrel as far as scrap is concerned. Defense and domestic demands for steel simply cannot be met unless at least 100,000 tons of "purchased" scrap roll into the furnaces—*every day.*

The bulk of this scrap must come from industry. That's why we're asking for your all-out help. That's why it's so important that you make the drive for scrap part of your daily operations. Make it your business to encourage every employee to report any obsolete, broken or worn-out machinery, tool or equipment that has seen its day. From this dormant "junk" must come the heavy melting scrap that the mills need most. Don't let your scrap lie idle; send it on its way. How about it, pardner?

You'll find your local scrap dealers listed in the yellow pages of the phone directory.

This page would ordinarily be used to tell you about

U·S·S HIGH STRENGTH STEELS

but, because without SCRAP we cannot produce steel, we are asking instead for your all-out help in getting more SCRAP to the mills.

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COLUMBIA STEEL COMPANY, SAN FRANCISCO · NATIONAL TUBE COMPANY, PITTSBURGH
TENNESSEE COAL, IRON & RAILROAD COMPANY, FAIRFIELD, ALA. · UNITED STATES STEEL COMPANY, PITTSBURGH
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UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS

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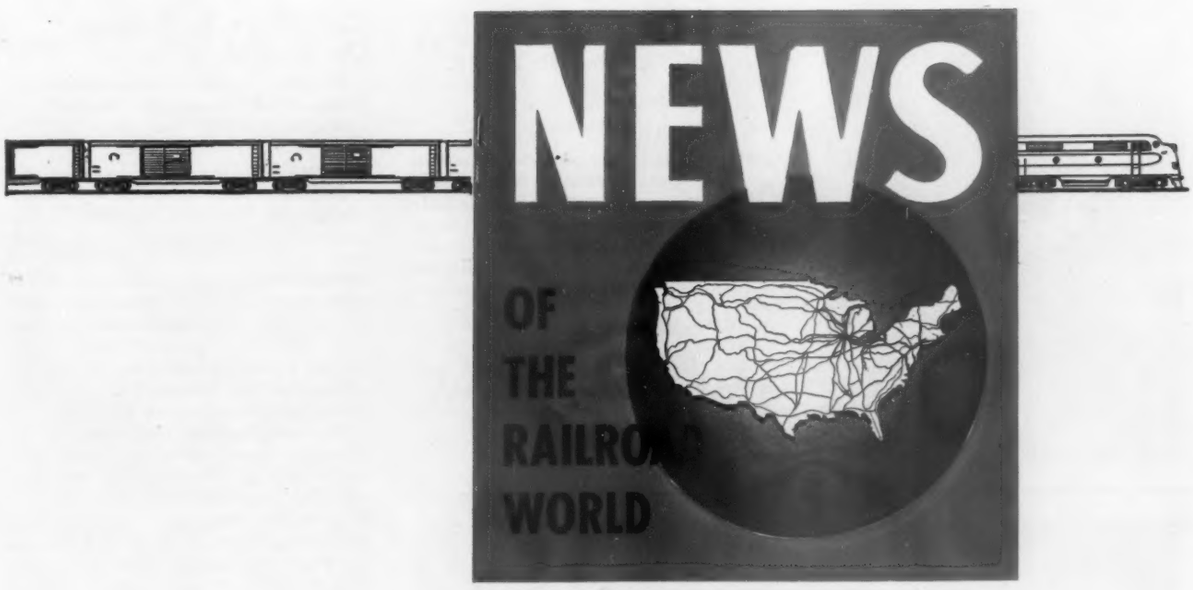
UNITED STATES STEEL



Emergency Board Ends Hearing On Firemen's Wage-Rules Case

Union-shop board adjourns for holidays and Army secretary still has O. R. C. arbitration request "under consideration"

Conclusion of emergency board hearings in the wage-rules dispute between rail carriers and the Brotherhood of Locomotive Firemen & Enginemen highlighted last week's developments on labor matters in Washington, D. C.

The Board's report on the dispute will be ready about January 15, the board announced. It has spent three weeks receiving management's side of the case after the union walked out on the opening day of the proceedings. (*Railway Age*, December 3, Page 11.)

Meanwhile, another emergency board also adjourned for the holidays. The board, investigating the union-shop dispute between railroads and non-operating employees, recessed after receiving testimony from the 17 non-op unions. It will reconvene in Chicago, January 7, to begin hearing railroad presentations. (*Railway Age*, December 17, page 14.)

Other labor matters during the week included a continuation of mediation proceedings in the wage-rules dispute involving the Brotherhood of Locomotive Engineers. Meetings with the National Mediation Board were continuing as this issue went to press, and that union's request for an emergency board was still being held in abeyance.

Nor was any action forthcoming from Secretary of the Army Pace who still had "under consideration" the December 7 letter from the Order of Railway Conductors. The letter, from the union's president, R. O. Hughes, was an appeal for arbitration of O. R. C.'s long-pending wage and rules dispute with the carriers.

J. M. Symes, executive vice-president of the Pennsylvania, testified December 14 before the emergency board investigating the B. of L. F. & E. case. He told the board that competition among various unions is responsible for troubled labor relations on the railroads.

"Victims of Rivalry"

"The railroads are the victims of vicious rivalry among the unions—one trying to outdo the other in their demands on the carriers," Mr. Symes declared. "Management is finding it impossible to deal with its employees on any reasonable and practical basis."

"A labor group representing one segment of railroad employees will start a wage movement, or a rules movement which usually is designed to fatten the pay envelope. They pad their demands to a point where there is no reasonable expectation that they will get what they are seeking. Naturally, management cannot agree to such exorbitant demands, even though it would like to settle the issues on a fair and equitable basis. The next step is to take a strike vote, the purpose of which, employees are told, is to give their leaders the 'ammunition' necessary to make a settlement without any danger of an actual strike.

"Then along comes one or more other labor groups representing other railroad employees, each seeking to outdo the other, and all seeking to outdo the one that made the original demands, so that ever since the war there has been uncertainty and unrest in the employees minds as to 'where do we go from here' and 'what do we get from here.'"

Mr. Symes told the board that granting increases to the B. of L. F. & E. beyond those already offered would create dissatisfaction because it would result in unfairness to other employees —"which would start the ball rolling all over again."

The P. R. R. officer said also that it is "difficult" to understand why the firemen insist on larger increases than those offered them. The increases they demand are not required to protect established differentials as between operating employees, and they are not required because of added responsibilities or additional work. As a matter of fact, he said, the firemen have benefitted more than other employees in the way of less manual labor because of the inauguration of diesel and electric locomotives.

Howard Neitzert, counsel for the carriers, summed up the railroad case at the board's final session December 17. Among other things, he "cautioned" the board of the "necessity" of making its recommendations "conform to the pattern" of settlements already agreed to by a majority of railroad employees. He said this is the only way industrial peace can be achieved in the industry.

Mr. Neitzert charged that the reason the firemen's union decided to boycott the board's hearings was because "on December 21, 1950, the president of the union agreed with the carriers to a settlement of this dispute on precisely the terms now offered by the railroads."

"Under these circumstances," Mr. Neitzert added, "what could the representative of the union say, here, now, to this board, in opposition to a settlement of this dispute along the lines provided by the terms of their president's agreement? They could not urge upon your board that when their president participated in negotiation and execution of the agreement of December 21, 1950, he was inept, confused or deceived."

In the non-op union-shop case, George E. Leighty, president of the Order of Railway Telegraphers, was final witness for the non-ops. He charged the railroads with stooping to insincerity and trickery" in their effort to block the union shop movement.

"In this case, the carriers have put on false whiskers and a Santa Claus suit and are pretending that their only concern is the unselfish protection of the feelings of a small minority of non-union employees," Mr. Leighty told the board.

"Management is shouting "principle, principle," when they have no principle. Their concern and their sole motive in opposing the union shop is a desire for greater and greater profits at the expense of the men and women who do their work."

NEW HEADQUARTERS for the Maintenance of Way Brotherhood were opened in Highland Park, Mich., (near Detroit), on October 30 amid ceremonies that included setting a cornerstone, a formal dedication, an all-day "open-house" and an evening banquet. Built at a cost of $600,000, the reinforced concrete structure is faced with Indiana limestone on front and sides. Brick is used at the rear. The main entrance on Woodward ave. is embellished by Italian granite under canopy projections. In his second-floor office, President T. C. Carroll is shown receiving telegrams and other messages of congratulations. His quarters are walnut panelled and trimmed with Verde Antique marble near the floor and at window sills. A gallery of oil paintings by Floyd Green depicting different phases of railroad work performed by the membership has been hung in the building. Present for the dedication ceremonies were Michigan's governor, G. Mennen Williams; L. W. Horning, vice-president of personnel and public relations, New York Central; Frank J. Goebel, vice-president of personnel, Baltimore & Ohio; James W. Oram, director of personnel, Pennsylvania; and more than 1,000 brotherhood members and guests

Conn Reports Progress On T. A. A.'s Project

Progress on the Transportation Association of America's "National Cooperative Project" was reported last week by the association's executive vice-president, Donald D. Conn.

Mr. Conn made his report at a December 18 luncheon meeting in the Statler Hotel, Washington, D. C., which was attended by representatives of national organizations concerned with transportation. The cooperative project is the T. A. A. undertaking to find what "common ground" there is on which interested parties can get together for the purpose of presenting a transport program to Congress.

The program will be based on recommendations coming out of the project's national panels which are composed of transport users, investors, and the various transport agencies—railroads, waterways, pipe lines, highways, air lines, and freight forwarders. The first report to come out of the project will be ready "by January 1," Mr. Conn said.

It was explained, however, that this will not be a final report. It will be in the nature of a proposed report by the project's policy administration board to the association's board of directors. Before the latter gets it, it will be subject to review by the panels. And when it is submitted, the board will hold public hearings on it at Chicago, giving all interested parties an opportunity to express their views. The report will then be put in final form for submission to Congress. That submission, however, is not expected before the latter part of 1952, at the earliest.

Mr. Conn also announced that the association will create a Washington Transportation Conference to act as an advisory group to the association's Washington staff. The conference's chairman will be Clarence F. Lea, head of the Washington staff, and former chairman of the House Committee on Interstate and Foreign Commerce.

In other parts of his address, Mr. Conn explained the nature and purposes of T. A. A. He also stated that, in his opinion, "common carriers of the United States are far closer to socialization in 1951 than was British transport in 1941, because of Federal fiscal policies and inflationary forces."

Mr. Conn also commented briefly on the so-called "Bricker report, i.e., the "progress report" on the Senate Interstate and Foreign Commerce Committee's investigation of domestic land and water transportation, which was submitted to the Senate on October 19 by Senator Bricker, Republican of Ohio. (*Railway Age*, October 29, page 11.) The report "may or may not be good, depending upon where you sit," Mr. Conn said. He added that it "falls far short of meeting testimony we gave before the Senate committee."

Other speakers at the meeting were F. W. H. Beauchamp, vice-president of

T. A. A., and W. H. Day, manager, transportation department, Boston, Mass., Chamber of Commerce and chairman of the National Cooperative Project's policy administration board. Mr. Day said that the "biggest problem" in panel discussions has been regulation, and that consideration of it has been "deferred."

Freight Car Loadings

Freight car loadings for the week ended December 15 were not available when this issue of *Railway Age* went to press.

Loadings of revenue freight for the week ended December 8 totaled 773,520 cars; the summary for that week, as compiled by the Car Service Division, A.A.R., follows:

REVENUE FREIGHT CAR LOADINGS
For the week ended Saturday, December 8

District	1951	1950	1949
Eastern	131,596	136,090	117,974
Allegheny	155,413	153,671	133,478
Pocahontas	63,852	59,654	47,956
Southern	137,155	133,627	118,598
Northwestern	92,767	89,068	74,838
Central Western	127,537	130,663	114,270
Southwestern	65,200	64,122	61,711
Total Western Districts	285,504	283,853	250,819
Total All Roads	773,520	766,895	668,825
Commodities:			
Grain and grain products	54,307	51,058	47,620
Livestock	10,363	11,152	11,202
Coal	158,464	161,257	136,017
Coke	17,238	15,853	11,786
Forest products	41,402	44,473	41,598
Ore	31,539	22,148	12,134
Merchandise l.c.l.	72,486	80,909	81,949
Miscellaneous	387,721	380,045	326,519
December 8	773,520	766,895	668,825
December 1	821,776	740,165	693,923
November 24	711,447	701,551	664,555
November 17	814,435	837,458	758,972
November 10	791,403	839,880	635,823
Cumulative total 49 weeks	38,570,614	36,779,914	34,152,636

In Canada.—Car loadings for the week ended December 8 totaled 84,011 cars, compared with 84,903 cars for the previous week and 78,772 cars for the corresponding week last year, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
December 8, 1951	84,011	35,963
December 9, 1950	78,772	34,783
Cumulative totals for Canada:		
December 8, 1951	3,967,255	1,690,412
December 9, 1950	3,696,605	1,549,678

Two-Wheel Hand Brake Not Adequate for Diesels

A hand brake designed to operate upon only two wheels of an eight-wheel diesel-electric locomotive unit "is not an efficient hand brake," the Interstate Commerce Commission has declared. The declaration was embodied in the commission's report on an accident which occurred September 19 on the Seaboard Air Line at Raleigh, N. C.

The report was No. 3428, and the investigation out of which it came was conducted by the commission's Bureau of Locomotive Inspection.

The accident was one in which a diesel-electric, running in "uncontrolled movement on a descending grade," collided with the rear end of a work train. It was caused by "inoperative air brakes and a defective hand brake" on the diesel, the commission found.

The hand brake involved was a two-wheel brake. And the commission's recommendation was that the Seaboard "install and maintain efficient hand brakes upon its diesel-electric locomotives so located that they can be safely operated while the locomotives are in motion."

The locomotive involved was diesel unit No. 1714, a B-B type road-switcher, which had a total weight of 234,620 lb. and a rated tractive effort of 58,655 lb. It was powered by a 1,600-hp. engine, and it was mounted on two four-wheel trucks, each axle of which was gear-connected to a traction motor.

The unit had No. 6-BL air-brake equipment. Its hand brake had a lever-type operating handle; and the hand-brake chain was connected to the right brake lever of the rear truck and "was effective on one pair of wheels only."

The collision occurred while a hostler was undertaking to move the diesel from one servicing track to another at the Seaboard's Raleigh enginehouse. The estimated speed of the locomotive at the time of the collision was 30 to 40 m.p.h. An improperly alined switch was also involved.

The force of the collision drove the rear of the work train's caboose on top of the front platform of the diesel. The conductor and flagman on the work train were "seriously injured."

The diesel's air-brake equipment was slated for repairs at the time. An engineman, who had just completed a switching trick with it, had reported that the air brakes were "slow in applying and releasing." Evidence gathered by the commission's investigators indicated that, before the hostler undertook to move the unit, a machinist-inspector had removed the plugs from the vent holes of the quick release valves of the air brake apparatus. Thus "inoperative air brakes" were found to be one of the collision's causes.

With respect to the hand brake, the report noted that the hostler made "unsuccessful efforts" to apply it. To its conclusion that a two-wheel arrangement was "not an efficient hand brake," the commission, as indicated above, added a finding to the effect that the hand brake actually involved was also "defective." As to that, the report had this to say:

"The hand brake was tested and it was found that the pawl did not automatically engage the teeth on the rachet on the upward or power stroke of the handle. . . . It was found that the ¾ in. by 3 in. flat steel pawl spring was imbedded in road dirt and grit in the bottom of the operating lever housing. The dirt and grit were removed and all moving parts lubricated, after which the handle and working parts were replaced. The brake could then be operated."

The report's summary of evidence said that the engineman, who operated the diesel on the switching trick just prior to the accident, had stated "that he used the hand brake during the dinner period and that he had to hold the dog with one hand while operating the handle with the other." Daily inspection reports on the locomotive were also in evidence. They included one made by an engineman on September 9 at Hermitage, Va. "Hand brake broken," it said.

J. B. SHORES, public relations director of the Texas & Pacific (right), receives from Harold E. Stassen, president of the University of Pennsylvania, the "Silver Anvil" recently awarded to the T. & P. by the American Public Relations Association "for outstanding achievement in public relations in the field of transportation." As reported in *Railway Age*, November 26, page 18, the award was based on the railroad's series of newspaper and magazine advertisements on the theme "How You Can Make America Strong"

Free Market for Transport Rates Urged by Bingham

"The days when railroads and city transit monopolies, if there were such days, have long since passed," S. H. Bingham, chairman of the Board of Transportation of New York City said in Washington, D. C., on December 18. Addressing the Washington Board of Trade, Col. Bingham pointed out that "both these forms of mass transportation are now in an intensely competitive business—railroads are faced with competition from trucks for freight and from buses and airlines for passengers; and city transit is faced with the competition of the private car."

Col. Bingham said he emphasized this point to show "that we must reconsider the kind of regulation necessary for mass transportation systems. They are in a highly competitive business and should be left to the normal

price regulation of a free market to a much greater extent. The lag in revenue behind costs has so reduced earnings of city transit companies that they no longer attract new capital. Without continued investment it is impossible to modernize lines and install new and technically improved equipment for better and more economical service."

Rock Island Installs More Food Vendors

Coin operated sandwich and beverage vending machines soon will be installed on all the Chicago, Rock Island & Pacific's streamlined "Rockets," according to Merle J. Reynolds, manager of dining car service.

First such installation by the road went into service on November 21 when the streamlined "Bankers Special" suburban train left Joliet, Ill., for its non-stop run to Chicago. To celebrate the occasion, coffee and doughnuts were served free to commuters from vending machines located in a section of one of the mid-train coaches. Service remained "on the house" for the first week of its operation.

The first main line installation will be on the "Des Moines Rocket." Shortly after January 1, Mr. Reynolds said, the new service will have been extended to the entire "Rocket" fleet. One advantage, he added, is that it will free dining cars and crews for passengers desiring full meals. The machines, on the "Rockets," built by the Stoner Manufacturing Company of Aurora, Ill., feature four different kinds of sandwiches which the passenger selects by dropping a quarter in the proper slot.

Parmelee Testifies In Explosives Case

Opposition to the trucking of explosives over public highways gained considerable momentum as hearings continued in the so-called Riss case in Washington, D. C. This is the test case on which some 60 other motor carrier applications will be based, and it involves an application to the Interstate Commerce Commission by Riss & Co. for permanent authority to transport explosives. (*Railway Age*, December 3, page 98).

Dr. J. H. Parmelee, vice-president of the Association of American Railroads and director of the Bureau of Railway Economics, appeared at the hearings in opposition to the Riss application. He said, among other things, that ammunition and explosives represent "a very important item of traffic to the railroads," and any threatened diversion of rail traffic should be studied "in the light of its effect on the public welfare."

Representatives of several more states also joined the opposition. State highway commissioners of Mississippi and Louisiana, the director of highway safety and traffic of Iowa, and the assistant chief engineer of highways for Pennsylvania were among those appearing before I.C.C. Examiner B. E. Stillwell to protest the applications.

Public officials are taking the position that transportation of explosives over the highways would unduly jeopardize lives and property. They are also fearful of what might happen to highway bridges and to cities through which the motor carriers would have to pass.

The executive committee of the Governors' Conference submitted a statement in which the committee said it found "many serious objections" to the mass granting of authority to transport explosives by motor carrier. It cited the already-high accident rate, possibility of damage to highway facilities, and the lack of adequate enforcement staffs in many state highways and safety departments.

Meanwhile, as these hearings were continuing, commission secretary W. P. Bartel issued a notice which said that Roadway Express, a motor carrier of Akron, Ohio, had pleaded guilty and been fined $500 in a U. S. District Court in New Jersey for violating regulations governing the transportation of explosives. The defendant was charged with transporting "dangerous inflammable liquids without the motor vehicle used being marked or placarded to show that it was transporting such dangerous liquids," the notice said.

The commission also released the comments made by Judge William F. Smith of the New Jersey court. Judge Smith warned Roadway Express that it, or any other "second offenders" brought before him, could expect to receive maximum penalties. He noted that when personal injury or property damage results from failure to comply with safety provisions, those responsible can be fined as much as $10,000 and sent to jail for 10 years.

Olsen Leaves O.C.T.

After 40 years of continuous service in Army transportation, Ingwald C. Olsen, executive assistant, Commercial Traffic Service division, is leaving the Office of the Chief of Transportation. In 1911 Mr. Olsen entered the Trans-

ST. LOUIS RAILROADS WERE WELL REPRESENTED at the November 20 "Railroad Day" luncheon of the St. Louis Electrical Board of Trade, when members of the board had as their guests the chief executive officers and chief engineers of St. Louis railroads. As guest speaker, Arthur K. Atkinson, president of the Wabash, warned the electrical leaders that government regulation of all industry could come by the "foot-in-the-door" technique that has been used upon the railroads. He questioned, however, whether "regulation" was the proper term to describe what is being done to the railroads today. Shown here with L. M. McLeod, vice-president of the Westinghouse Electric Corporation and program chairman for "Railroad Day" (standing at the microphone), are, left to right: Armstrong Chinn, president, Terminal Railroad Association of St. Louis; Robert J. Morfa, chairman of the board, Missouri-Kansas-Texas; Donald C. Fraser, president, M.-K.-T.; Guy A. Thompson, trustee, Missouri Pacific; Col. Clark Hungerford, president, St. Louis-San Francisco; Paul J. Neff, chief executive officer, M.P.; Frank A. Thompson, chairman of the board, St. L.-S.F.; J. E. Davies, president, Alton & Southern; Mr. Atkinson; R. E. Stevenson, vice-president, G.M. & O.; and Herbert W. Ward, president, I.T.

port Service of the Quartermaster General as a clerk and by 1917 had risen to principal clerk, Land Transportation division, Office of Quartermaster General. He became senior administrative officer, Commercial Traffic division in 1941 and between January 1942 and June 1948 he served in the Army, attaining the grade of colonel. During this period he was executive officer to the chief, Commercial Traffic Service division. In this capacity he planned and implemented many World War II Army transportation policies, including using mortuary cars to relieve the critical shortage of baggage cars. During 1948 Mr. Olsen served as president of the Traffic Club of Washington, D. C.

Staggered Furloughs Will Ease Holiday Traffic

A program for staggering holiday furlough time for members of the armed forces, so as to make best possible use of transportation facilities, was worked out between the Department of Defense and representatives of the transportation industry.

The Defense Department said local commanders and transport officers of military departments must rely upon advice from the commercial carriers, both as to the travel load and adjustments that must be made to relieve congestion. Military installations were authorized to stagger departures and returns over longer periods if local situations warrant.

Meanwhile, Defense Transport Administrator Knudson issued a reminder that holiday travelers should time their schedules to avoid peak travel periods. He said they should plan departures to avoid December 21 and 22, and plan return trips with the heavy January 2-3 traffic in mind.

Canadian Railways May Enter Trucking Field

Donald Gordon, president of the Canadian National, hinted that Canadian railways may go into the trucking business, when he told the recent annual dinner of the Toronto Railway Club that:

"The railways have been jockeyed into a position in which newer forms of transportation are permitted to operate in their specialized fields without having to accept the general obligations which are the historic legacy of the railways. Naturally, if the railways are to give the public full benefit of coordinated techniques, an expansion of their service to include highway competition is inevitable."

He also told the club that "skillful propaganda" is building up an assumption that railways are traditionally unprogressive and lack the desire or ability to be competitive. "There is a degree of misunderstanding and downright ignorance about railroading, and an assumption that the railways are constantly trying to cover up their own inefficiency by gouging more money in freight rates."

There has been a "spectacular improvement" in service and equipment during the last 50 years, he declared, "representing progress and response to changing conditions."

He said railways have been setting the pace in modern transportation, although their opportunities are limited, because they have to follow regulatory principles which do not hamper other transport systems.

"It seems to me it should now be recognized that a regulatory mechanism which was devised in restraint of monopoly has now, with the advent of powerful competition in the transportation field, become transformed into restraint of competition," he said. "So long as the present rigidity of regulatory control continues to be imposed on the railways, I have little real hope about simplifying our freight rate structure."

New Class Tariffs Will Embody Simplifications

Innovations "to promote simplicity and ease of handling and use" will feature the tariffs publishing the new class rates required by the Interstate Commerce Commission's decision in the general class rate case—No. 28300. This was revealed in a joint announcement made December 17 by the Railroads' Tariff Research Group and the committee of tariff-publishing agents responsible for compiling the new tariffs.

The rate scale involved will apply in all sections except Mountain Pacific territory in connection with the uniform classification of country-wide application which the railroad must file by February 1, 1952, pursuant to the commission's order in No. 28310, Consolidated Freight Classification. (*Railway Age* of August 6, page 41, August 13, page 40, and November 12, page 15.)

The rate tariffs also will be filed about February 1, 1952, to become effective about June 1, 1952, according to the December 17 announcement. There will be 12 rate tariffs and one rate basis tariff.

"All rates," the announcement also said, "will have a 'between' application and the names of stations will be used in the class tariffs as base points for each group. Rate basis numbers will reflect the short line rail distance between base points.

"All 12 class rate tariffs will be uniform in the arrangement of matter and typographical layout. Certain provisions common to all tariffs have been standardized in text, location, and item number. The 12 tariffs will be separately identified by a unique system of numbering, starting with 1000 and ending with 1011, each number being preceded by letters denoting territorial application.

Thus, for example, Kipp's W-1000 will apply within Western Trunk Line territory; Raasch's I/S-1003 will apply between Illinois and Southern territories; and Kratzmeir's SW/E-1005 will apply between Southwestern and Official territories.

"The advances incorporated in the make-up of these new tariffs are being hailed as significant steps in the direction of tariff simplicity," the December 17 announcement reported.

ORGANIZATIONS

Bryant Chairman of A.S.M.E Railroad Division

C. B. Bryant, chief engineer of the Technical Board of the Wrought Steel Wheel Industry, is chairman of the Railroad division of the American Society of Mechanical Engineers, to serve until the close of the annual meeting of the society in 1952. Mr. Bryant succeeds C. E. Pond, assistant to superintendent motive power of the Norfolk & Western, who served as chairman during 1951. Other members of the executive committee for the coming year are G. W. Bohannon, manager purchases and stores, Pullman Company; E. M. VanWinkle, vice-president, American Steel Foundries; C. K. Steins, mechanical engineer, Pennsylvania, and J. S. Newton, vice-president, Baldwin-Lima-Hamilton Corporation. E. L. Woodward, western mechanical editor of *Railway Age*, is secretary.

New members on the general committee of the Railroad division, with five-year terms expiring in 1956, include M. M. Cooledge, eastern sales representative, Buckeye Steel Castings Company; J. W. Hawthorne, general superintendent motive power and car equipment, Atlantic Coast Line, and J. F. Weiffenbach, vice-president, manufacturing, Canadian Locomotive Company. E. H. Davidson, director of the Bureau of Locomotive Inspection of the Interstate Commerce Commission, whose term on the general committee expired this year, continues on the committee for a second term.

The terms of the new officers and committee members began at the close of the final railroad session at the annual meeting of the society held at Atlantic City November 26-29.

MORE NEWS ON PAGE 43

Additional organizations news appears on page 43, followed by other regular news departments, which begin on the following pages:

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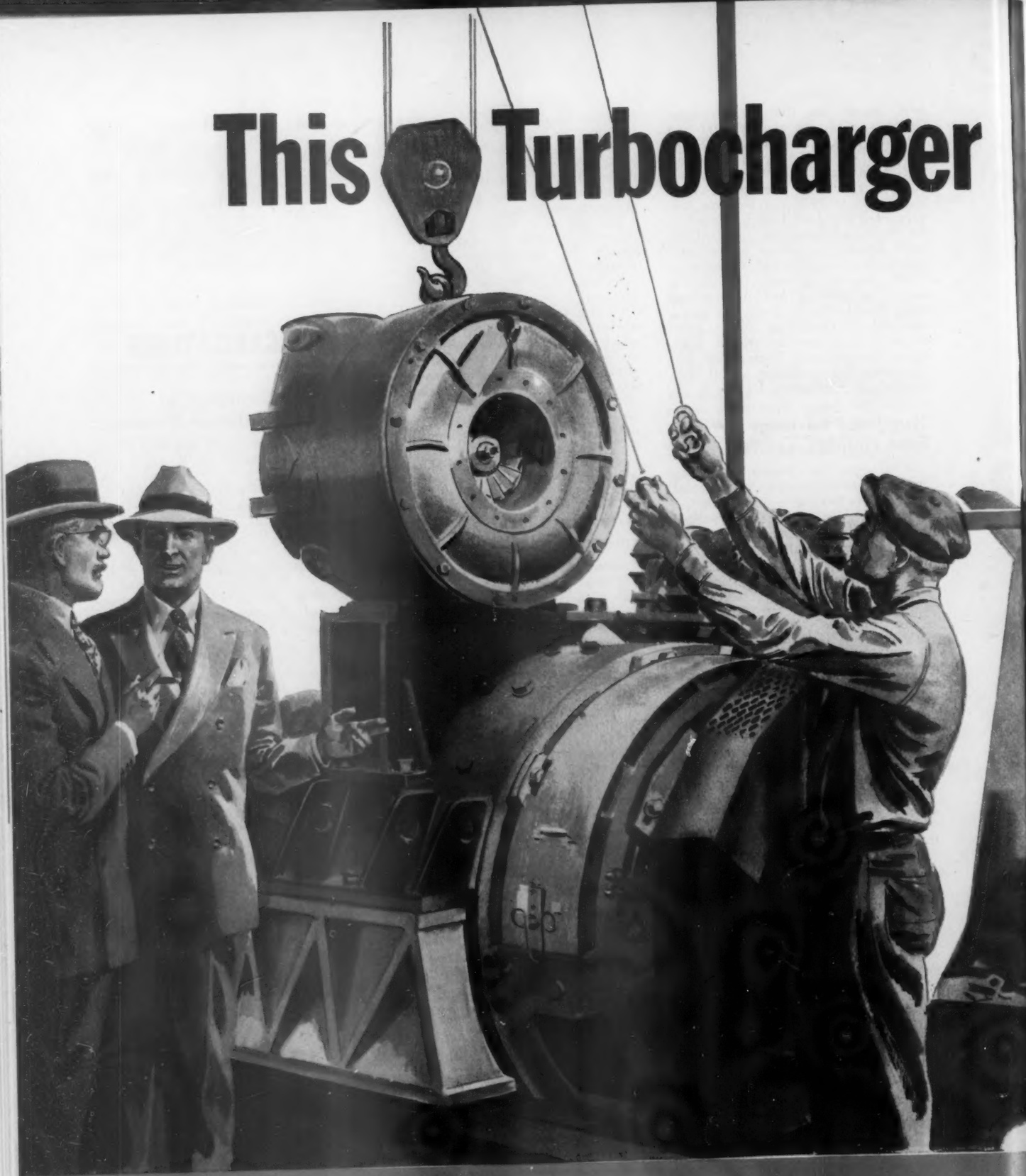
This Turbocharger



"You're GETTING something more

3600-HP. Road Locomotive. Four 1600-HP. Units.

1500-HP. All-service Locomotive. Six Traction Motors.

1800-HP. All-service Locomotive. Four Traction Motors.

1600-HP. All-service Locomotive.

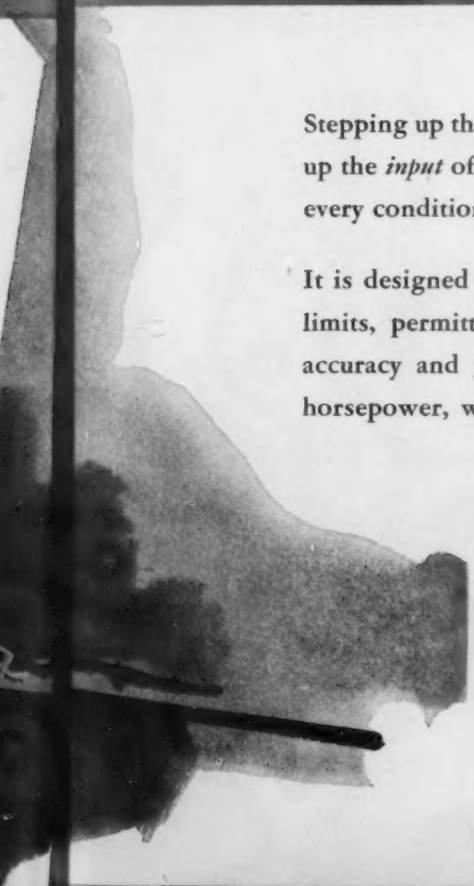
1200-HP. Road Switching Locomotive.

1200-HP. Switching Locomotive.

800-HP. Switching Locomotive.

2400-HP. Road Transfer Locomotive.

gives motive power its second wind



Stepping up the output of Baldwin-Westinghouse Diesel-Electric Locomotives calls for stepping up the *input* of the turbocharger . . . and this new, improved "iron lung" comes through under every condition.

It is designed to operate normally at a lower speed . . . but has *higher* rpm and temperature limits, permitting accelerated operation at high altitudes. Rotor is a forging, with higher accuracy and greater strength. Blades are short, so peripheral speeds are lower for same horsepower, with heavier cross section—stubby and rugged. Nozzle ring and water cooling have been improved. Bearing construction has been simplified. Special steels, including high temperature alloys, have been used for critical parts.

This improved turbocharger is just one of many reasons for the added output that you get from Baldwin-Westinghouse Diesel-Electric Locomotives . . . and that spells more profitable operation for railroad users.

BALDWIN-LIMA-HAMILTON CORPORATION

Philadelphia 42, Pa. • Offices in Principal Cities

because we're DOING something more!"

BALDWIN-Westinghouse

DIESEL-ELECTRIC LOCOMOTIVES

NEW POWER SYSTEM PAYS FOR ITSELF IN LESS THAN 4 YEARS!

For many years, the Terminal Railroad Association of St. Louis generated d c for its shop machinery. But the age of the steam generators, coupled with rising operating and maintenance costs, made replacement necessary.

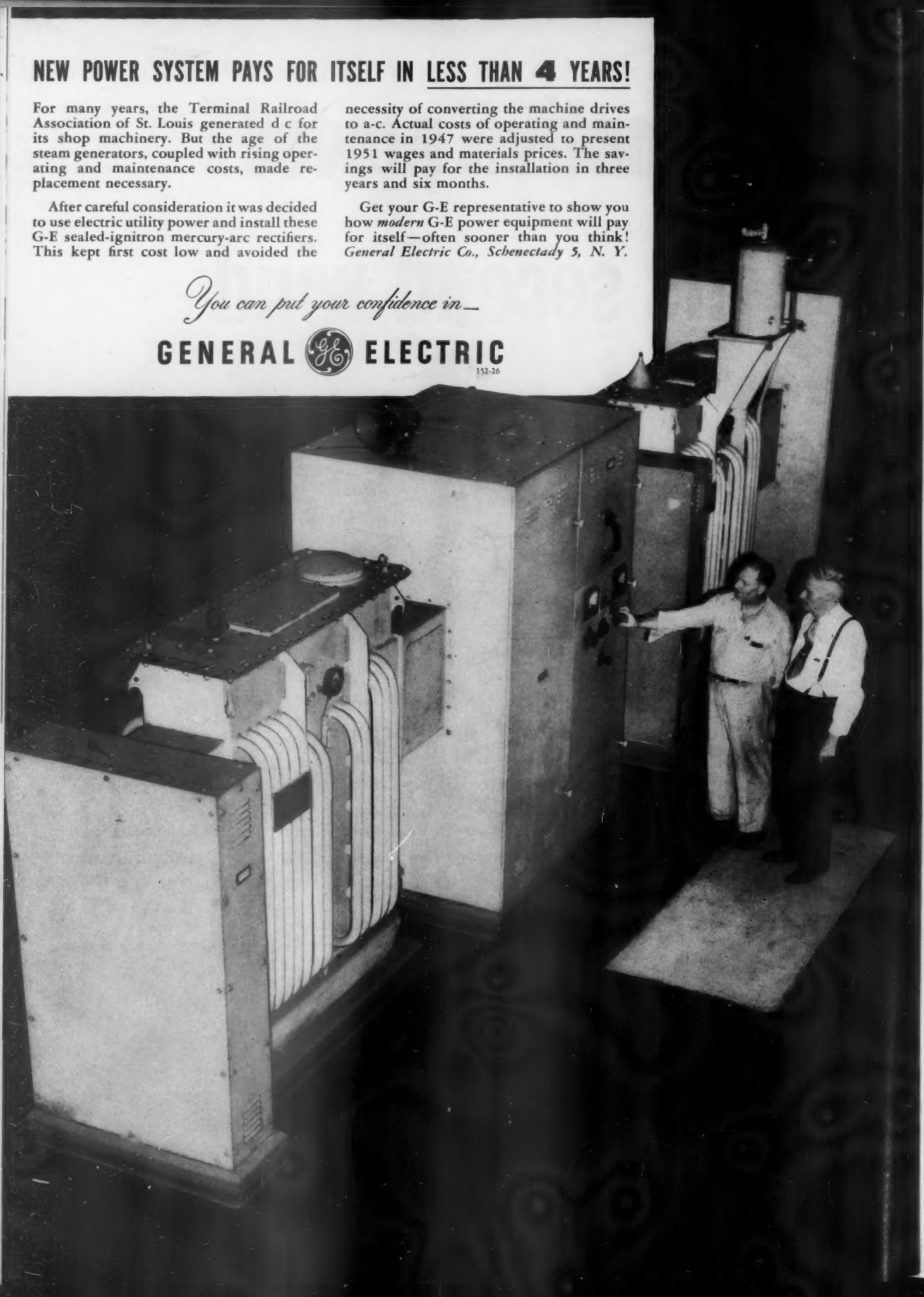
After careful consideration it was decided to use electric utility power and install these G-E sealed-ignitron mercury-arc rectifiers. This kept first cost low and avoided the necessity of converting the machine drives to a-c. Actual costs of operating and maintenance in 1947 were adjusted to present 1951 wages and materials prices. The savings will pay for the installation in three years and six months.

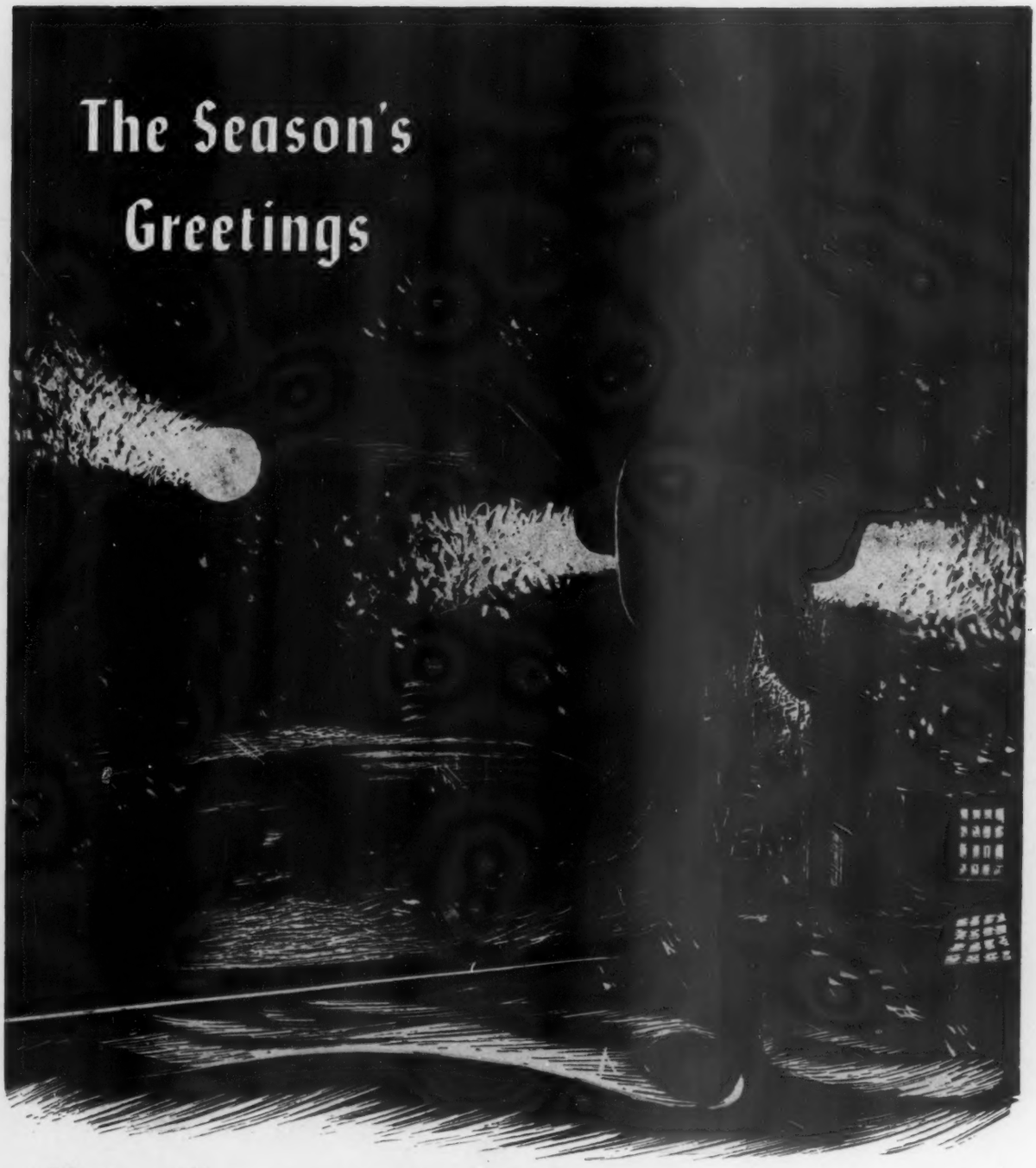
Get your G-E representative to show you how *modern* G-E power equipment will pay for itself—often sooner than you think! *General Electric Co., Schenectady 5, N. Y.*

You can put your confidence in—

GENERAL ELECTRIC

152-26





"National" has been identified with transportation for 84 years. ☆ As the New Year unfolds, its facilities for quality-controlled production continue to be directed—with enthusiasm—for maximum service to the railroads.

A-4842

NATIONAL MALLEABLE and STEEL CASTINGS COMPANY

NATIONAL Products FOR TRANSPORTATION AND INDUSTRY

GENERAL
SO. ATLANTIC
2119

THE SOUTHERN SERVES THE SOUTH

...AND HELPS TO BUILD THE SOUTH

From the Atlantic Ocean to the Mississippi River . . . and from the Ohio and Potomac Rivers to the Gulf of Mexico—"The Southern Serves the South." And through serving —builds. New factories and plant expansions along this road's 8000 miles of line have averaged one for each working day during the past 10 years.

Keeping pace with this tremendous industrial growth, the Southern has modernized and improved its services and facilities—building new yards, buying modern motive power and freight and passenger cars—to give its customers the best transportation service possible.

Powerful Alco-GE locomotives are among the Southern's 847 diesel-electric locomotive units now in service and on order. And they are proving as versatile as they are dependable. For example, Alco-GE road switchers are used in freight, passenger and switching service. These modern units play an important part in the Southern's ability to "Serve the South."

AMERICAN LOCOMOTIVE
and
GENERAL ELECTRIC

113-266

LET US BE THANKFUL
THAT WE ARE FREE TO CELEBRATE THE COMING HOLIDAYS
AND ENTER THE NEW YEAR WITH A DETERMINATION
TO KEEP THE WHEELS TURNING.

SEASON'S GREETINGS

THE
SUPERHEATER CO., INC.
Division of
COMBUSTION ENGINEERING-SUPERHEATER, INC.
200 Madison Ave., NEW YORK 16
Bankers Building, CHICAGO 3
Montreal, Canada, THE SUPERHEATER COMPANY, Ltd.
Representing AMERICAN THROTTLE COMPANY, INC.

Steam Generators for All Purposes
Welded Boilers for Steam Locomotives
Exhaust Steam Injectors
Superheater Pyrometers
American Throttles
Feedwater Heaters
Oil Separators
Superheaters
Steam Driers

RAILWAY AGE
EDITORIAL COMMENT

HOW TO STRENGTHEN MANAGERIAL CAPACITY

This writer was recently privileged at a large university to visit a class of so-called "retreads"—officers from a wide range of corporate industry, most of them only two or three rungs below the top of the official ladder, who were back at school on a 90-day leave from their regular jobs. They were not studying the peculiar problems of the petroleum industry, or the department-store business, or transportation—but were seeking out the best answers to the managerial questions which are common to all business. This was no ordinary group of college students—half-asleep because the lecturer's wisdom was beyond their experience, and consequently uninteresting. On the contrary, the lecturer was quite unable to say anything about corporate managerial questions which did not arouse a lively response from all his auditors, because they had already dealt with something like the same questions in their regular jobs.

Here certainly is education at its most effective best—where all the students know something from actual handling about every question that can be raised; and where getting the combined expression of all their experience on any one question would often come close to summarizing all human knowledge about it.

The follower of a trade or profession needs, first of all, to know all there is to know about the skilled performance of the customary tasks which confront him in his daily occupation. The trainman needs to know the requirements of a good job of flagging; the carman needs to know the deft way to change a pair of wheels; and the secretary needs to know stenography and typing. But some occupations have as their principal requisite, not knowledge of some particular internal technique, but the knowing of a lot about other people, other businesses and other departments. For example, a salesman, to be most effective, ought to know as much about his customers' business as he does about his own.

A man who heads an engineering department or a traffic department, and who knows or cares little about departments other than his own, is not likely to be a very noteworthy success as a department head. In a big business, no part is an end in itself; and the parts have to be resolutely subordinated to the welfare of the whole, if the enterprise as a whole is going to prosper.

"Inherent Inertia"

The higher up the ladder an officer gets, either in railroading or manufacturing or refining oil or selling clothing, the more he ought to know about how other businesses function; and the more friends and contacts he needs to have—not only on the management side of businesses other than his own, but among non-management people—workingmen, farmers, clergy, journalists, lawyers, physicians, politicians. No business thrives which is not managed to conform with the interests and understanding of the rest of the community; and management cannot give this kind of direction without acquiring firsthand knowledge of other parts of the community—either intuitively or by conscious effort. A very wise Spaniard, Ortega by name, has said:

"Every trade and profession has inherent in it an inertia which persuades each of its members to shut himself up more and more within the confines of his own interests. Left to its own devices, the group will end by losing all sense of social interdependence. . . . It is therefore necessary to keep alive in each trade or profession a consciousness of the many other trades and professions whose cooperation it needs, which are as worthy of respect as it is, which have methods and madnesses that must in part be tolerated and at least be understood. . . . It is neither important nor necessary that the component parts of a society coincide in their ideas . . . ; the important, the essential thing is that each should know, and to a certain extent incorporate in his own life, the ideas and desires of the others."

There is mortal conflict in the world today arising from the clash of two diametrically opposed beliefs about the nature of man—one belief being that he is

nothing whatever but a greedy animal, never motivated by anything but his appetite, especially his appetite for riches. This belief exists among some people who consider themselves to be adherents of capitalism—the kind of "capitalists," for instance, who maintain the belief that everything desirable is obtainable for a price. The logical end, however, to such belief about the nature of man is Communist gangsterism. The opposite belief about man is that, for all his animality and greed, he also has a spark of the divine in him; and that this spark can be fanned into a flame which can control his behavior, at least part of the time.

Washingtons, Lees and Lincolns

Under the dominance of the first belief about the nature of man, the successful leaders are those who are the most accomplished cutthroats. Where the opposite belief about the nature of man is preponderant, the only leaders who are ultimately successful are those who give evidence of guidance by moral principle. George Washington had this quality to such a high degree that he, almost alone, was the rallying point for the forces which achieved American independence. Men such as Robert E. Lee and Abraham Lincoln also had this quality. There are lesser Lees, Lincolns and Washingtons scattered through our business, political and professional life who bind the fabric of the nation together; and whose friendship with their counterparts in other countries establishes the only solid basis for international peace.

The institutions in the community which truly educate present and future leaders, and those which help them deepen their devotion to moral principles, are the bulwark of our defense against our Communist enemies. Leaders in business, political or professional life who operate from purely self-seeking motives and with no regard for the rights of others should and would rate high in a regime where Communist gangsterism is in the saddle. On our side of the world such leadership constitutes weakness and not strength—because that kind of behavior is incompatible with a regime of capitalism and political freedom derived from Christianity.

It is unusual, perhaps, to find such observations as the foregoing in a business journal, but they are not untimely, surely, at Christmas. Anyhow, no apologies are offered, because such considerations lie at the heart of successful business leadership in that part of the world which still remains free.

HAND BRAKES FOR DIESELS

In a news article on another page in this issue is a report of a collision caused by a diesel switching locomotive running out of control on a descending grade. After a movement of the locomotive within the engine terminal had been started by the hostler, the air brakes were found to be ineffective and the locomotive could not be stopped with the hand brake. The latter was defective because of an accumulation of dirt in the bottom of the operating-lever housing, which prevented the spring from automatically forcing the pawl to engage the teeth on the ratchet. The hand brake is arranged to operate on one pair of wheels only, and the I.C.C., in its discussion of the accident, stated that "such an arrangement is "not an efficient hand brake."

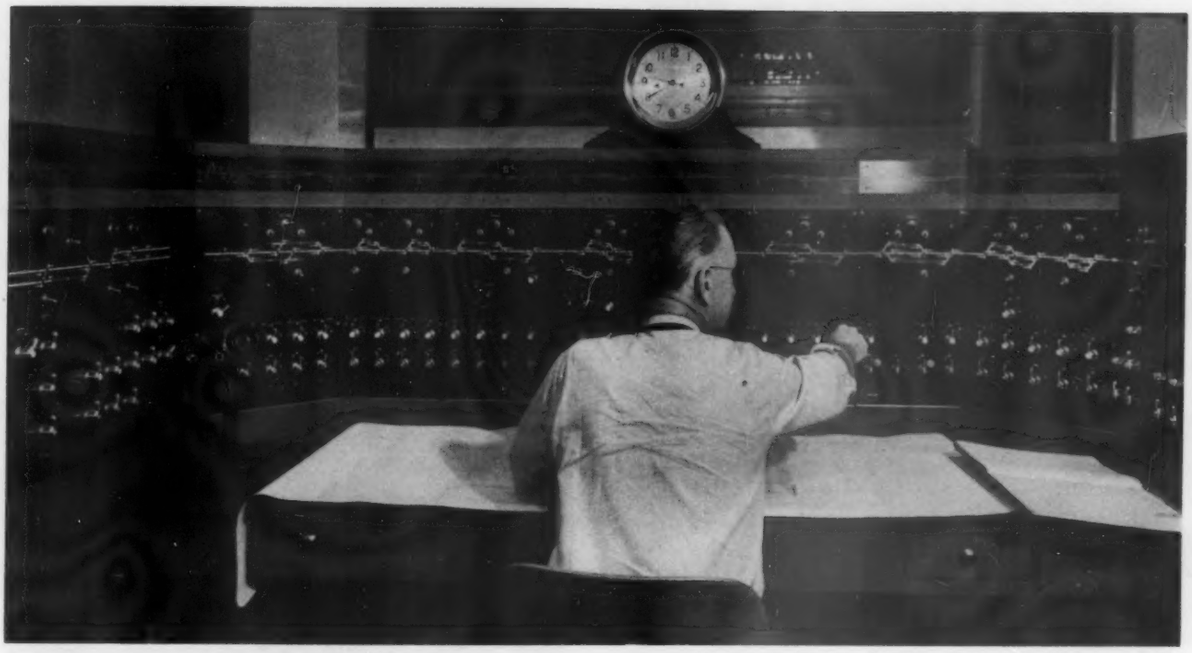
This raises a question with respect to the function of a hand brake on a diesel locomotive unit. Under similar circumstances of a complete failure of the air brakes on a steam locomotive in an engine terminal, if the locomotive were capable of being moved by its own power, it could be stopped and the wheels blocked by the emergency use of steam, even though there were not enough air pressure to operate the reverse gear. Complete reliance has long been placed on the air brake to control steam-locomotive movement and, when standing in engine terminals, the wheels were blocked.

In the case under consideration the air-brake failure so depleted the control-reservoir pressure that the power contactors could not be operated to reverse the traction motors. Thus, reliance cannot be placed upon any form of power to bring a moving diesel locomotive to a stop in a case of loss of air pressure. The hand brake, then, may be called upon to function as an emergency means of stopping the locomotive as well as a means of holding it when standing unattended in the terminal.

In the case referred to here, the primary cause of the accident when the air pressure failed was the defective condition of the hand brake. This is a case of poor housekeeping, as are no small proportion of other diesel locomotive accidents. The importance of cleanliness on these power units can scarcely be overstated.

But the commission in its report of the accident pronounces a brake operating on only two wheels as "not an efficient hand brake." This raises several questions. Certainly the two-wheel brake should be adequate to prevent movement of the standing locomotive. Had the two-wheel brake on the locomotive in the case under discussion not been defective, would the accident have occurred? Would two pairs of wheels on the same truck meet the deceleration requirements, in this case on a 0.95 per cent descending grade? Can the force which one man can exert be practically extended to the wheels of more than one truck on a locomotive unit?

These are all questions to which answers are needed in order that a realistic answer to the hand-brake application on diesel locomotive units may be arrived at. A simple program of tests would provide the data needed to answer these questions, and to the fundamental one of whether any hand brake can be relied upon to bring a locomotive unit to a stop under all conceivable conditions, once it has started to move.



The illuminated diagram on the dispatcher's C.T.C. machine aids him in setting levers to direct meets on close time

C. T. C. Pays Its Way On 103 Miles of Baltimore & Ohio

On busy single-track main line, with 20 to 30 trains daily, train time is saved and operating expenses are reduced by new control from dispatcher's office which replaces local control at 14 points

A complete system of centralized traffic control, including power-switch machines and signals, for authorizing train movements has been installed by the Baltimore & Ohio on the 103-mile subdivision, mostly single track, between Grafton, W. Va., and Parkersburg. This subdivision is part of the route from New York-Baltimore and Washington west to Cincinnati and St. Louis. This new C.T.C. permits more efficient utilization of existing track facilities, saves train time, and reduces operating expenses sufficiently to pay for itself in about five years, and is explained in more detail later.

Double track extends west 11 miles from Grafton to RS tower, and 4 miles from Lodgeville through Clarksburg to J tower. Also double track extends from SY tower 1.5 miles to Parkersburg station. This leaves 8 miles of single track between RS and Lodgeville, and 78.9 miles between MO and SY, thus totaling 86.9 miles of single track, out of the 103 miles in the subdivision.

About 90 miles of this subdivision traverses rough terrain in the foothills of the Allegheny mountains. The line passes over eight major crests, with ascending grades averaging 1.0 per cent (and up to 1.25 per cent) for two miles or more in each direction toward each crest. In the first 90 miles west from Grafton, the line winds continuously along streams and around hills, with considerable curvature, ranging up to about 6 degrees, with a few up to 8 degrees and one 9 degrees 30 minutes. There are 22 tunnels, one of which is 2,800 ft. long. On the 77 miles between Bridgeport and Kanawha the maximum permissible speed is 45 m.p.h. for passenger trains, and further reductions are required on some curves. The timetable authorized speed for freight trains is 35 m.p.h. which is of course not attained on the longer ascending grades. Thus, on account of the comparatively low speeds, it is important to keep trains moving, with minimum delay entering and leav-

Eastbound train photographed at the east end of the Smithburg siding

This signal has a "P" marker authorizing tonnage trains to pass upgrade without stopping

ing sidings. This is where the train operation by signal indication is a help.

Peak Traffic at Night

Eight passenger trains and eight scheduled through freight trains are operated on this subdivision daily. A local freight runs east one day and west the next. An extra express and mail train is operated nearly every day during rush seasons, and extra freight trains are run when required. Thus about 18 to 20 trains are operated daily over the subdivision. In addition, 10 to 12 mine-run trains operate west out of Grafton to set out cars and pick up loaded cars at coal mines and return to Grafton. Passenger trains and scheduled quick-dispatch freight trains are operated by diesel locomotives. Steam locomotives are used on local freight trains, extra mail trains, and extra freight trains. Passenger trains average 35.5 m.p.h. over the subdivision.

As measured by time, this subdivision is about halfway between New York and St. Louis, and it happens that the four most important through passenger trains meet in this section during the night. Likewise most of the fast through freights are operated at night on this subdivision. Thus the operating difficulties involve not only grades, curves and slow maximum speeds but also the fact that more than 75 per cent of the through trains are bunched on this subdivision in a peak period between 8 p.m. and 6 a.m.

Prior Control Arrangement

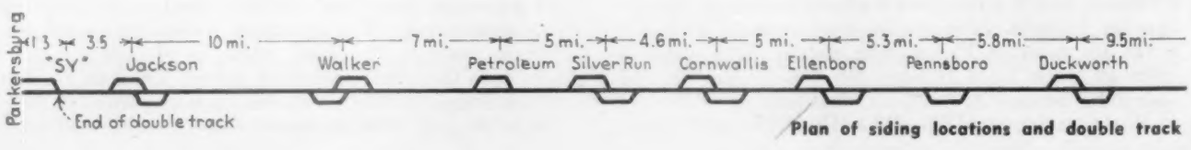
As one of the pioneers in the practice of authorizing train movements by signal indication on entire subdivisions, the Baltimore & Ohio installed such a system in the Grafton-Parkersburg territory in 1929. A set of interlocked desk levers were installed in each of 14 intermediate block offices. Each desk lever machine controlled not only the electric switch machines at both ends of the siding or sidings in that vicinity but also signals to authorize train movements. Thus at each block office the switches and signals for authorizing train movements were controlled locally by the operator. The operators at the block offices worked under the direction of the train dispatcher by telephone communication.

As the years passed, the Baltimore & Ohio made several installations of complete centralized traffic control elsewhere on extensive single track sections, so that experience was gained in the advantages of this system. Therefore, in 1951 it was decided to so modernize the signaling system on the Grafton-Parkersburg subdivision.

Now Controlled from One Machine

In general, the 1951 project consisted of the installation of a C.T.C. control machine in the dispatcher's office with a line circuit and coding equipment so that the dispatcher now has direct control of the power switches and signals at 14 of the prior outlying interlocking and block offices, plus the end of double track at Lodgeville.

A track change at Clarksburg included the extension of second track east through new tunnel No. 1 to Bridgeport, with end of double track at Lodgeville. This reduces the interlocking at Bridgeport to a single switch. The terminal interlockings at Grafton, Clarksburg and Parkersburg were left undisturbed and not included in the C.T.C. Local movements thus are handled



Plan of siding locations and double track

Westward signal in approach to Bridgeport which is capable of displaying the usual range of aspects and others

The new leave-siding dwarfs have bottom marker and can display five aspects

with less delay and the dispatcher is free to expedite the through traffic.

In the new installation, the dispatcher's C.T.C. system includes the control of power switches and signals at RS, Bridgeport, Lodgeville, Wolf Summit, Salem, Long Run, Smithburg, Duckworth, Pennsboro, Ellenboro, Cornwallis, Silver Run, Petroleum, Walker and Jackson. The track layouts at these locations are shown in the accompanying plan.

The dispatcher's control machine has five panel sections arranged in a "U" shape so that he can easily reach all the levers. The panel has the customary arrangement of levers, indication lamps and illuminated track plan to indicate the location of trains. An automatic train graph in the desk portion of the machine makes a record of the time that trains pass each power switch layout. The C.T.C. line code system includes carrier apparatus so that codes to or from the east and west sections can be handled simultaneously. The switches in the 47-mile east section between Grafton and Smithburg are controlled by d.c. code with carrier superimposed for handling the 52-mile west section from Smithburg to Jackson using d.c. code west of Smithburg.

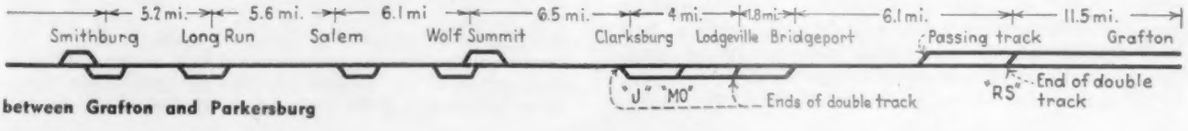
C.T.C. Pays For Itself

The new system of centralized traffic control from the dispatcher's office (1) has made possible a more efficient utilization of existing track facilities; (2) has brought about smoother train operation and thus improved on-time train performance; and (3) has made a decided reduction in operating expenses, sufficient to pay for the capital cost of the signaling improvement in about five years. The 1951 project involved a complete signal reconstruction program at the interlocked switch locations. Everything is new except the electric switch machines, the high signals, the track relays, the local line circuits, and the 440-volt a.c. power line wires. New leave-siding dwarf signals were installed and additional aspects were provided on many high signals. The annual direct saving is approximately $180,000, and the General Railway Signal Company, which furnished all the new signaling equipment for the 1951 project, entered into a conditional sales agreement which enables the railroad to pay for the signaling in monthly installments, based on the savings in operating expenses.

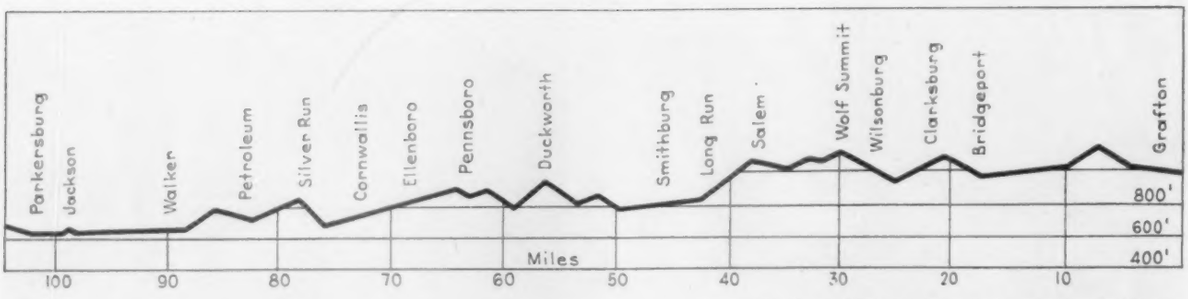
Smoother Train Operation

With the previous system, with 15 separate locally controlled interlocking layouts, when an approaching train "hit" an annunciator, the operator would call the dispatcher, and, as soon as he could, the dispatcher would tell the operator what to do with the train, i.e. (1) run it through on the main track; (2) head train into the siding; or (3) hold it on the main line. If the telephone circuit was being used or if the dispatcher was busy, time was lost, because the operator had to wait. In the meantime, the train reduced speed in accordance with Approach aspects, and in some instances came to a stop, needlessly.

With the new C.T.C. control, the dispatcher watches the progress of trains as indicated on his illuminated diagram, and he controls the power switches and signals



between Grafton and Parkersburg



Profile of the Grafton-Parkersburg subdivision

directly to keep trains moving at maximum permissible speed and to make meets with minimum loss of time. In numerous instances meets are made without either train being required to stop. A few minutes here and there makes a saving of 20 to 25 minutes for a freight train on the 103-mile run. In general the trains are now handled more evenly, so that track and time are available to keep trains moving. Therefore trains running late can make up time easier than previously, and on-time performance, which previously was good, has now been further improved. A further advantage is that extra trains can now be handled expeditiously without disrupting their operations. In brief, the centralized control has made it possible to utilize existing track facilities more efficiently.

More Signal Aspects

The signals installed in 1929 on this subdivision were the Baltimore & Ohio standard color-position-light type. As part of the 1951 project, the Approach-Medium aspect was added on many of the high signals, and the Approach Slow aspect was added on a few high signals. These aspects are an aid to enginemen in controlling their train speeds smoothly without reductions of speed other than where actually required for safety, as well as in avoiding unnecessary train stops.

The dwarf signals at interlocked locations were replaced with new color-position-light dwarfs which have a white bottom marker. These signals are capable of being controlled to display four aspects via No. 10 turnouts: (1) Stop; (2) Stop and Proceed; (3) Slow Approach; and (4) Slow Clear. This range of aspects permits a train to leave a siding sooner behind a train of the same direction which has just passed, thus saving several minutes in many instances. Main-track signals that govern in the ascending direction on heavy grades are equipped with a "Tonnage" marker, consisting of a white letter "P" painted on a black background, which authorizes trains with 80 per cent or more of tonnage rating to pass, at restricted speed, and continue without stopping at the signal. Trains are not permitted to accept letter "P" on signals except when displaying red with the top marker lighted, indicating stop and proceed for a following move.

The electric switch machines installed in 1929 are the Union Switch & Signal low-voltage dual-control type. These machines were continued in service. A new biased-neutral controller was added at each switch machine.

As part of the 1951 project, electric locks were installed on all the main-line hand-throw switches leading to house tracks, mine spurs and industrial sidings, and also separate electric locks were installed on the hand-throw derails at the clearance points on these turnouts.

At each power switch layout at the end of a siding or end of double track a sheet-metal house was installed for the relays, batteries and line coding equipment. At the intermediate signals, new sheet-metal cases are being installed as part of the maintenance program. At interlockings, case wiring, wires to track connection, cables to switch machines and other underground runs between signals, line-drop cables and some of the aerial cables were all installed new in 1951. The insulated wire and cable used was made by the Kerite Company. Style K relays were used.

Bias-neutral relay in combination with rectifier was used in lieu of polarized relay for the line control of signals, switch repeating relay circuits, etc.

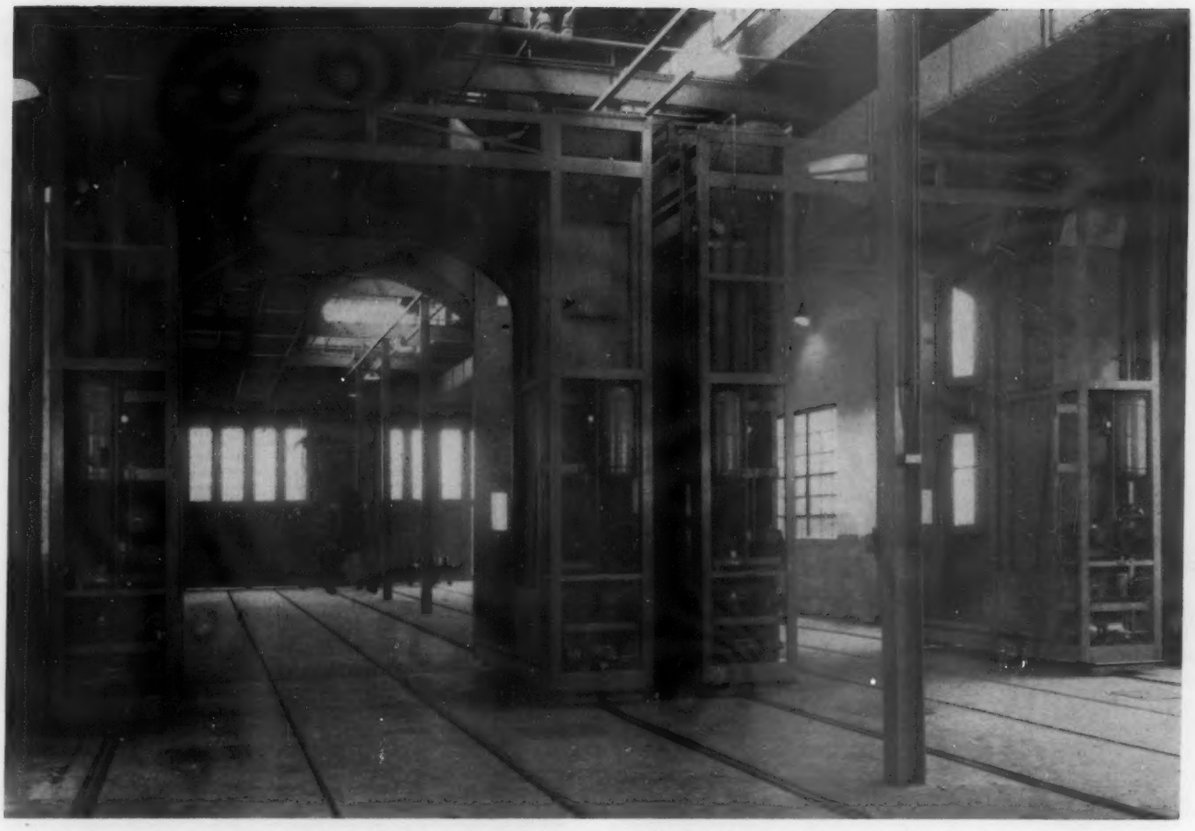
This 1951 centralized traffic control project was planned and constructed by signal forces of the Baltimore & Ohio under the jurisdiction of A. S. Hunt, chief engineer communications and signals, and under the direction of W. W. Welsh, signal engineer.

J. A. FISHER CITES OBSTACLES TO RAILROAD PROGRESS

"There are certain obstacles in the path of railroad progress," Joseph A. Fisher, president of the Reading, said at a recent dinner given in his honor by the Commercial Exchange of Philadelphia and the Philadelphia Maritime Exchange. "One is the ability of rail carriers to realize adequate net earnings from their operations," he added. "Despite the fact that railroads have since the war carried a record peace-time volume of freight traffic and are now in receipt of gross revenues that exceed even war-time levels, the average rate of return on railroad investment is less than 3½ per cent per year. For the first nine months of 1951 the return was at an annual rate of only 3.07 per cent."

Mr. Fisher pointed out that railroads have reduced substantially their outstanding debt and fixed charges, and that operating efficiencies have led to many economies. Despite this, he went on, only partial financial relief has been afforded the carriers because of their inabilty to obtain rate and fare increases commensurate with sharp rises in wage costs, prices of materials, and other items of operating expense. Another cause of low railroad earnings is the existence of inequitable conditions under which they compete for traffic, resulting largely from continuation of "unsound and uncoordinated" government policies, regulatory and promotional, affecting transportation.

"The problem is neither obscure nor difficult," Mr. Fisher concluded, "but it is a problem which must be clearly recognized and adequately dealt with if this nation is to continue to have the kind of rail transportation which is essential to its progress in peace, its safety in war. . . We count on the sympathetic understanding and the effective cooperation of our shipper partners in the common enterprise of supplying the daily needs of America."



Each of these paint-spray booths at the Calumet shop of the Pullman Company travels under its own power back and forth along the length of a passenger car. Each booth has built-in equipment for filtering, ventilating, exhausting and washing the air. The painters, one on each side of each booth, "go for a ride" while operating their spray guns

Latest in Car-Painting Equipment . . .

Pullman Installs Spray Booths on Wheels

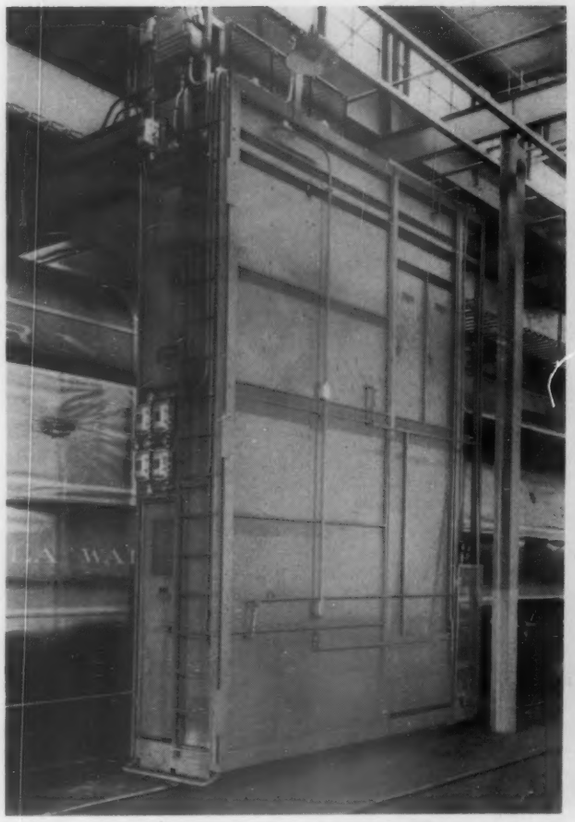
New traveling-type units afford clean, well-ventilated surroundings for men who ride alongside the cars

For finishing passenger cars at its Calumet (Chicago) and Buffalo shops, the Pullman Company has installed in each shop two units of a new type of spray-painting and air-exhaust equipment—a spray booth that travels under its own power back and forth along the sides of the cars while, at the same time, filtering, washing and exhausting the spray-laden air. The painters "go for a ride" in well-lighted, "air-conditioned" surroundings while operating their paint-spray guns. The traveling-type spray booths were designed and erected by the DeVilbiss Company in collaboration with Pullman Company engineers.

The development of the traveling-type spray booth is the result of a demand for equipment that would provide greater overall efficiency than the fixed, conventional down-draft or horizontal-flow spray booth, and which would entail less maintenance and less operating cost.

In other words, there was a demand for equipment that would obviate the need for providing facilities for ventilating, exhausting, heating, air-washing and lighting the entire volume of a sheet metal room 100 ft. long by 20 ft. wide by 19 ft. high while two men are spray-painting a passenger car. The objective, therefore, was the development of equipment that would permit these functions to be concentrated in the relatively small area where the actual painting is going on.

The time required to finish a car depends entirely



One of the spray booths in operation. One pass of the booth along a car requires about 7 min. Shadowless lighting is provided by explosion-proof fluorescent light fixtures (see right)

The working space on each side of each unit has a power-operated scaffold which the painter can raise or lower at the touch of a button to get the proper working height

upon the number of coats of paint, color combinations and decorative stripes required. The DeVilbiss booth is set to travel the length of a car in approximately seven minutes. For instance, in painting a car one color, giving the roof two coats and the body one, it is necessary for the booth to travel the length of the car five times—once for the application of each roof coat, two for painting the sides, vestibules and end sheets, and once for painting the steps, boxes, water-tank casings and battery boxes—a total of 35 min. in actual movement of the booth.

Pullman Company experience is that this new type of spray booth has a number of important advantages. For one thing, it is reported that a much better paint job is obtained, with substantial savings in time, because of the superior working conditions provided. For another, there has been a reduction in the amount of wasted paint because of the more accurate control of exhaust air movement possible with this equipment. Also, safety conditions have been improved, for the painters no longer have to climb up or down scaffolding, or walk along it, to perform their work. Formerly, passenger cars at the Calumet and Buffalo shops were painted outdoors, as the weather permitted.

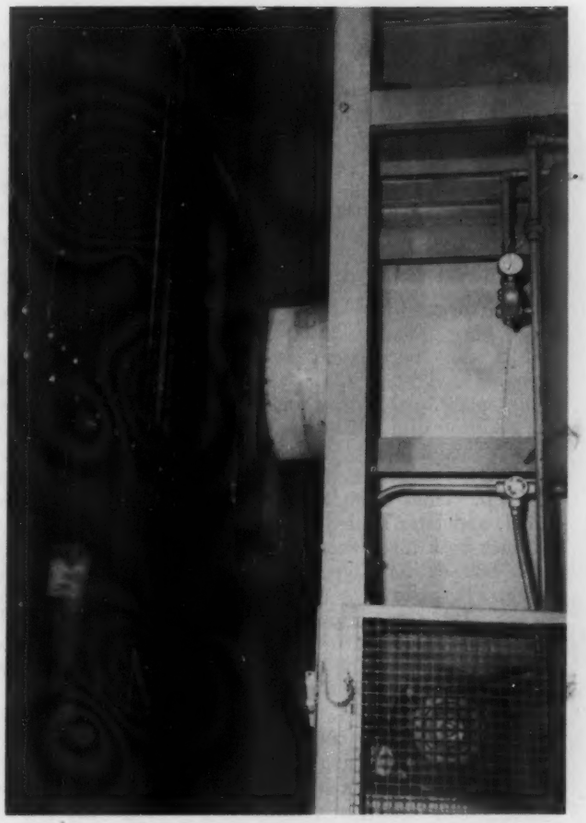
Constructed expressly to house the traveling spray booths at Calumet shop, the new paint shop, 44 ft. by 200 ft. in plan, is a concrete-block structure adjacent to one end of the car-repair shop. In it are two standard-gage tracks running the full length of the building, each of which will hold two passenger cars. The cars are moved from the repair shop to the paint shop on a transfer table. At Buffalo the two traveling spray booths were installed in an existing building.

The spray booths, all mechanisms of which are driven by electric motors, are each constructed somewhat in the form of an inverted U. They travel at speeds up to 25 ft. per min. on separate rails running parallel with the track rails. In plan the booths each occupy an area running 12 ft. parallel with the track and 18 ft. 4 in. transversely with the track. When a booth has been moved so that it straddles a car, the clearance between the booth and the sides and top of the car is about 6 in.

Each side of a booth has a working space 7 ft. long, with two access doors at one end. In this space the painter stands on a power-operated scaffold which, at the touch of a button, he can move up or down to get the desired working height. In the wall behind the painter are four banks of glass-enclosed explosion-proof fluorescent lighting fixtures, two at a low level and two higher up, which are reported to give better lighting conditions than were possible in a paint-spray booth of the conventional type.

Each side of a booth is also provided with an air-wash exhaust system, a water pump, an exhaust fan, a paint tank, an air regulator, a spray gun and hose, an air compressor for operating the spray gun, and an explosion-proof electrical control system. There is a completely automatic carbon dioxide fire-extinguishing system in each booth.

Here is how the traveling booth performs its "air-conditioning" functions. When the exhaust fans are turned on, a suction is created throughout the air-wash



For spray painting car interiors, an exhaust extension is placed between an air-wash chamber of one of the traveling booths and a car window

Looking from inside the car through the exhaust extension into the air-wash chamber. Suction pulls air through the car, drawing spray-gun spatter away from painters' faces

chamber on each side of the booth. As a result air enters the narrow space between the booth and the car, as well as through filtered intakes, and flows at a relatively high velocity along the periphery of the car and into the air-wash chambers, carrying with it all-over spray from the paint-spray guns. The air is cleaned of pigment in the air-wash chambers, and the cleaned air is discharged into exhaust pipes leading from the tops of these chambers. The exhaust pipes in turn discharge the cleaned air into a fixed, continuous exhaust duct suspended from the ceiling and running the full length of the building directly over the center line of the track.

The bottom of this duct consists of a series of pivoted louvers. As the booth moves along, the louvers are opened successively by cams on the top of the booth. Only enough louvers are lifted at a time to provide an opening in the continuous exhaust duct equivalent in area to the discharge ends of the exhaust pipes leading from the air-wash chambers. Separate exhaust fans draw the air through the fixed exhaust duct and discharge it into the outside atmosphere.

The exhausted air is replaced in the paint shop by a single, centrally situated air-replacement unit on the paint-shop roof.

The traveling booths are also used to exhaust air while passenger car interiors are being spray painted. This is done by spotting a booth at about the center of a car and extending an auxiliary exhaust pipe from a water-wash chamber into a car window. The suction of this pipe when the exhaust fans are turned on causes air to flow from the opened end doors of the cars, through the car interior to the exhaust extension pipe and thence into the water-wash chamber.

The Pullman Company has found that the traveling booth has a number of advantages over the conventional type. One of the most important of these is the fact that, in paint shops similar to the Pullman Company's, the traveling-type booth requires only about a third as much replacement air as would a conventional fixed booth. This results in a substantial fuel saving in the winter when the replacement air must be heated.

Another advantage claimed by the manufacturer and Pullman for the traveling booth is that it saves floor space. Each occupies an area of only about 228 sq. ft. as compared with 1,900 sq. ft. for an equivalent fixed booth. This results in more room and light in the shop and more effective supervision of the painting operation because better visual control over the entire paint-shop area is possible. Moreover, the traveling-type booth is found to provide much greater flexibility in painting operations than the fixed booth, requires fewer lights, eliminates the need for intricate sewer connections, drains and water lines, and expensive permanent scaffolding along the entire length of a car.

According to the Pullman Company placing the traveling type booth on rails in the floor resulted in economies in the installation, as the building superstructure was not affected in any way. Further economies are being effected, it is said, in the operation of the new booths, through the savings in electricity and heat, in a reduction in the replacement of material and air hose, and in savings in the cost of cleaning and masking the booth surfaces.

The main boiler plant showing its relation to the barge loading canal

Peak-Load Boiler Plant Meets Emergency Demands at Low Cost

Lackawanna's semi-automatic, oil-burning installation has proved its ability to produce steam quickly for sudden winter loads

Normal demands for steam and compressed air in the Hoboken, N. J., Terminal of the Delaware, Lackawanna & Western are supplied by a coal-burning boiler plant. Steam is generated by three boilers using barley coal on chain grates. Air compressors are steam driven. Steam pressure is 175 lb.

Steam is used for heating buildings, snow melting, compressing air, coach heating, coal thawing, and for the operation of engines employed to dump the contents of cars into barges.

Steam Demands Vary

For short periods during winter months, the steam demand in the terminal area exceeds the capacity of the boiler plant. Such peak loads could have been met by the addition of a fourth coal-burning boiler in the boiler plant. This would have meant enlarging the plant, including the construction of a foundation on what is now a canal. Ashes from the boilers are sluiced into this canal, and later loaded into an ash car.

Since peak loads occur only for short periods, the use of a semi-outdoor type, oil-burning boiler was decided upon. The plant uses diesel fuel oil, which is available in the yard. This permitted designing the plant for semi-automatic operation with no fuel or ash-handling problems. The cost of the oil-burning plant was about half the cost of enlarging the main plant.

The use of bunker C oil was considered, but this would have increased first cost about 30 per cent, and would have prevented putting the plant on the line quickly. The use of bunker C oil would also have entailed the need for an operator continuously through the winter season.

Operation Is Automatic

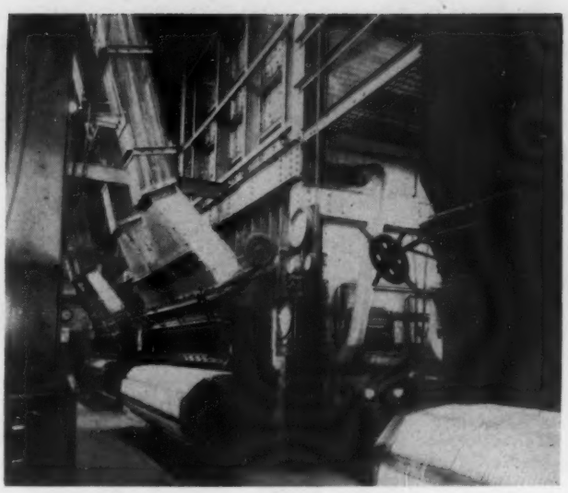
The present plant can be put into service in less than one hour, and after it is started its operation is automatic.

Actually, the plant was in operation a total of only 20 hours during the past winter, but without it, an emergency would have resulted. The 1950-51 winter was mild, but the plant has sufficient capacity to take care of all emergency requirements, including possible failure of one of the boilers in the main plant.

The peak-load plant consists of one 60,000-lb. per hr. steam generating unit with automatic feed water regulator, feed water heater and device for adding boiler compound in proportion to the amount of feed water. There are three breech type burners with fuel supply pump, flame failure control, automatic pressure and draft controls, and low-water shut down. Blowers provide drafting both above and below the fire. Feed water is fed to the boiler by a motor-driven centrifugal pump and the admission of feed water through the open-type heater is controlled automatically by a thermal-type water level gage.

A narrow building houses the front of the boiler and control equipment only. The remainder of the boiler is insulated and jacketed by a method similar to that used on steam locomotives.

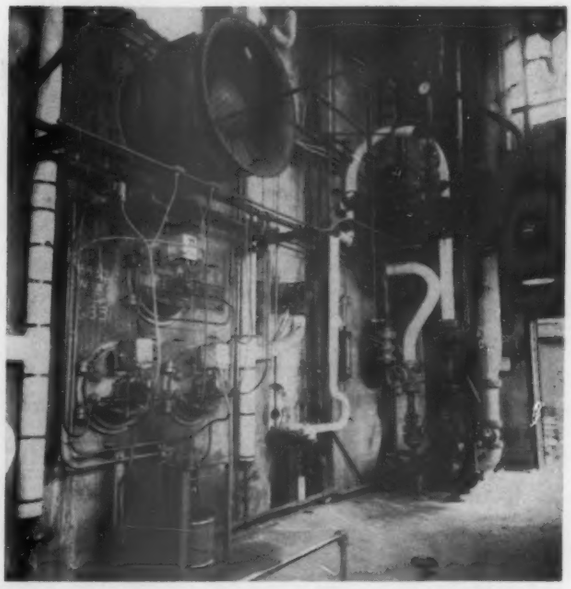
The main fuel supply tank is about 4,000 ft. from the boiler plant. A 3-in. pipe line, mounted above an existing steam line, is used to convey oil from the main tank to a 25,000-gal. tank adjacent to the boiler plant. This tank is placed in a concrete dyke, and equipped with Foamite fire protection. It provides fuel for about three days' continuous operation, and is refilled by a pump near the main supply tank.



Interior of the main boiler plant

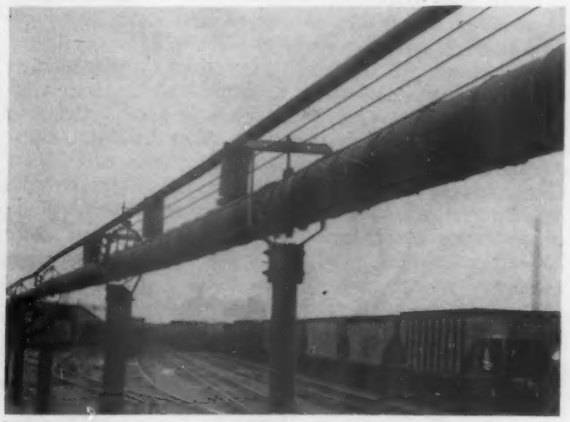
The peak load boiler plant with its oil supply tank at the left

Most of the peak load boiler is out of doors, the building housing only the boiler front, feedwater and control equipment



Interior of the peak load plant showing the boiler front with its two burners and drafting blowers

The small pump which supplies oil to the peak load plant oil tank. It is located in the diesel oil pumping plant



The 3-in. fuel line which supplies the peak load plant is carried above a steam pipe line

Following luncheon on the second day, members of the transport panel responded to questions from the audience. Shown here at the head table, left to right, are Harrie S. Taylor, who represented the lake carriers; Alex. W. Dann, inland waterways; R.A.L. Bogan, buses; Andrew H. Brown, of the Cleveland Chamber of Commerce, who had presided at the morning session of the forum; Verne Sullivan, assistant manager of the Transportation and Communication Department of the national Chamber of Commerce, who was moderator of the luncheon session; L. L. White, railroads; J. H. Carmichael, air lines; Carroll J. Roush, trucks; and Charles R. Musgrave, pipe lines. Due to the angle at which the picture was taken, the name cards do not in all cases appear directly in front of the individual to whom they apply

Varying Views on Transport Aired at Cleveland

U. S. Chamber of Commerce's third regional conference produces agreement on some broad general principles; divergence of opinion on such matters as user charges

Substantial agreement on some phases of the national transportation situation—and definite disagreement on others—were revealed in the remarks of transportation and industrial traffic spokesmen who addressed the third, and largest, of the regional transportation conferences sponsored by the Chamber of Commerce of the United States, at Cleveland on December 12 and 13.

There was unanimous agreement as to the necessity of avoiding any degree of nationalization for any form of transport, and also as to the desirability of "better understanding" as between the various forms, and as between transportation as a whole and its industrial customers. There was, in addition, general agreement on the wisdom of giving railroads more freedom in discontinuing unprofitable lines and services; while most of the industrial traffic speakers likewise expressed the opinion that railroads should be allowed greater latitude in operating other forms of transportation and more discretion in quickly adjusting rates to meet increases in costs.

Truck representatives indicated opposition, however, to the two latter proposals, and there was general disagreement on the question of user charges for publicly provided transportation facilities.

Featured speakers at the conference were Interstate Commerce Commissioner Hugh W. Cross and Senator John W. Bricker, Republican of Ohio, author of the so-called "progress report" on hearings held last year by a subcommittee of the Senate Interstate and Foreign Commerce Committee under authority of Senate Resolution 50. Another highlight of the meeting was a forum of speakers representing the several forms of transportation, on which the railroad representative was Lynne L. White, president of the Nickel Plate. The conference itself was arranged by the chamber's Transportation and Communication Department, with Harold F. Hammond, department manager, presiding in the absence of Evans A. Nash, chairman of the chamber's Transportation Committee. Attendance was approximately 375, exceeding by almost 50 per cent the earlier similar conferences at Oklahoma City and Atlanta.

Three Major Obstacles

The Senate subcommittee, Senator Bricker declared, "found that both the executive branch and the Congress have failed to observe the national transportation policy," and outlined "three major areas in which federal policies need be changed if we are to effect a sound transportation policy as a whole."

"The first major obstacle . . . is the fiscal policy of the federal government. . . . Unsound fiscal policies work a special hardship on the railroads because of their enormous capital investment. Drying up venture capital by exorbitant taxation manifests itself gradually. It assures the drift toward socialism. . . .

"The second major obstacle . . . is the absence of fair and impartial regulation. . . . It is absurd to continue to regulate the railroads on a monopoly theory when there are so many areas where they are forced to compete in order to survive. . . .

"Unsound promotional activities represent the third major obstacle. . . . There is at the present time no element of subsidy in rail transportation. The meager evidence available indicates that some motor carriers pay too much for the use of the highways and others too little. . . . There is a substantial element of subsidy in air and inland waterway

"If government takes over one form of transportation, sooner or later government will own all. Inefficient government ownership cannot stand the competition of efficient private operation," Senator John W. Bricker of Ohio told the first day's luncheon session, in outlining the findings of his "progress report" on subcommittee hearings under Senate Resolution 50

transportation. . . . These subsidies have created powerful vested interests. Faced by a staggering federal deficit, however, Congress may be more inclined to impose gradually a system of fair user charges by which it can be reimbursed for a substantial part of its expenditures on transportation facilities.

"Millions of Americans now share in ownership of the railroads. The crucial question is whether that ownership shall continue to be voluntary or be made compulsory. . . .

"You who have special knowledge of the gigantic transportation industry, and who are, I am sure, keenly aware of the certain and tragic results of continuing down the road we now are traveling, have the duty and responsibility to let the facts be known."

The Bricker report, said Commissioner Cross, although "some of the issues are extremely controversial," has "highlighted" certain "weaknesses which constitute obstacles in regulation." He urged "careful consideration" by Congress of the "specific recommendations in the report"; and also advocated "widespread studies by groups familiar with transportation problems . . . with the view of making appropriate recommendations to Congress for a unified independent transport regulatory body."

The greater part of Commissioner Cross' address was devoted, however, to a discussion of congressional versus executive control of transportation. There is, he said, a growing feeling "that the commission has been weakened of late, and that it is less effective than it was in its early days when it was charged with far fewer duties to perform. . . . This decline of the I.C.C. and other independent regulatory agencies has been accompanied by a greater growth of duplicating executive agencies usurping many of the important functions of these independent bodies. . . .

"This progressive deterioration, if it is permitted to run its course unchecked, inevitably will lead to anguished cries for change. . . . The stage would be set for the 'planners' who want to see independent regulatory commissions absorbed into an executive department of the government. . . . The principal danger in the transposition of regulation of interstate commerce into an executive department . . . lies in the political atmosphere to which such a body would then be exposed."

To avert that danger, and to meet what he described as "an increasing sentiment that one independent tribunal should regulate all forms of transportation," Commissioner Cross recommended "immediate steps to increase the present understaffed examiner force of the commission to the approximate level of 1940"; that "examiners be recruited promptly and given on-the-job training under the experienced tutelage of the commissioners and veteran examiners"; "adequate provisions for earned promotions"; and "some assurance that a newly recruited staff will not the following year be emasculated by arbitrary cuts because of a starvation policy."

What the Patient Needs

Mr. White, speaking for the railroads at the forum which occupied the entire second day of the conference, undertook to "define the ills" of the "nation's basic transportation industry," and to "consider the treatment which will make the patient stronger and healthier." "The greatest inequity," he declared, "is subsidizing by the government of the railroads' competitors"; but he found other difficulties as well:

"Railroads are more closely regulated than any other of the transport agencies. . . . [They] still must struggle under regulations designed to curb monopolies which no longer exist. . . . Regulations which are aimed to curb monopolies should be drastically revised or completely removed.

"The declared national transportation policy should be extended to all government departments and agencies concerned with transportation. . . .

"The nation will never have a sound national transportation system until all segments of the industry are regulated by a single regulatory agency and all given the same treatment. Promotional activities of the federal government so far as transport is concerned should also be placed under unified direction and control. . . .

"The railroads are not in their present plight because of inertia in carrying on research or failure to employ new and more efficient methods of operation. . . . The difficulty has been that the railroads have not been allowed to reap the rewards of their efforts; indeed, gradually yet relentlessly, they are being crushed between what on the one hand seems an irresistible force, and on the other an almost immovable object — between constantly rising wages and material costs on the one hand, and an archaic and inflexible rate-making procedure on the other."

To remedy those difficulties, Mr. White suggested "a national transportation policy administered by a single regulatory body which would assure each transport agency fair and equal treatment and prohibit subsidy to any agency to the detriment of another"; "a proper charge," giving full recognition to cost of construction and maintenance, "where facilities constructed or financed by federal, state or municipal funds are used by a transportation agency"; and early and adequate rate relief to enable the railroads "to set aside funds to bridge them over periods of lesser activity."

The Nickel Plate president assured his audience that "the railroad industry does not want to see its charges get too high because higher rates either siphon off the better paying commodities to competing means of transport, or invite decentralization of industry, which if carried to its ultimate end would leave the railroads with nothing much more than the raw materials to haul." But he did advocate that, "When railroads are confronted with new wage awards . . . the I.C.C. should automatically authorize corresponding increases in rates." Subsequent hearings, he said, would be needed "to dispose of details," but "the railroads would, through such a procedure, be spared their present dilemma of drawing on their all too meager working capital to cover increased costs until the commission acts."

"The meager spread between operating revenues and cost of operations makes it crystal clear" that improvements in plant and service "cannot be continued in-

definitely. . . . We are reaching the point where the American public must decide whether its railroads will operate as a free and competitive enterprise, or whether we are to face . . . the tragedy which has resulted from nationalization of British railways."

Other Agencies' Views

Other speakers with Mr. White on the forum discussion were: For buses—R. A. L. Bogan, executive vice-president of the Greyhound Corporation; for trucks—Carroll J. Roush, president of Roadway Express, Inc.; for air lines—J. H. Carmichael, president of Capital Airlines; for lake carriers—Harrie S. Taylor, president of Oglebay, Norton & Co.; for inland water carriers—Alex. W. Dann, chairman of the board of the Union Barge Line Corporation; and for pipe lines, Charles R. Musgrave, vice-president of the Phillips Petroleum Company. Andrew H. Brown, transportation commissioner of the Cleveland Chamber of Commerce, was chairman for the morning session, while Verne Sullivan, assistant manager of the national chamber's Transportation and Communication Department, was moderator of the luncheon session, when the various speakers answered questions addressed to them from the audience.

Conceding that "buses do not and cannot replace the services offered by any other established form of public transportation," Mr. Bogan said they "do have a highly essential place in the overall pattern of American travel." He predicted added refinements and more luxury in future bus equipment, and "greater variety in the types of service offered," with "more emphasis on limited, express and through service" and on "specialty travel."

Mr. Bogan's opinion that "the intercity bus business has experienced rapid growth, and enjoyed popular favor, because men in the industry saw, and responded to, certain pressing public needs" was echoed, as to trucks, by Mr. Roush, when he said, "We are what we are, and we offer the various kinds of service we offer, almost entirely because that is what the shipper has demanded. More than any other business I know of, the trucking business has been molded by people it serves."

Both of the highway representatives, Mr. Roush in particular, asked "vast highway modernization" — with Mr. Bogan calling for "new, safe four-lane divided highways" and Mr. Roush declaring that "the requirements of the trucking industry will be met . . . if the shipper will express his needs in terms of the philosophy that we must build highways to fit the traffic."

At the conclusion of his speech, Mr. Roush sharply attacked the Bricker report as an "unusual" and "completely partisan" document, and "not a representative digest of the 1,500 pages of testimony taken by the subcommittee." "It would seem," he said, "that Senator Bricker apparently has become a spokesman for the railroads."

Mr. Carmichael said the air lines "have doubtless diverted some business from other forms of transportation, and will probably continue to do so" with the improved equipment and greater reliability which he predicted for them. But, he maintained, they "have also developed some new traffic and generated some new business." He saw little chance for air lines to become carriers of bulk cargo, but anticipated "a substantial growth in air express and air freight."

Mr. Taylor devoted his address to the development and economic importance of the Great Lakes cargo carriers, concluding with a plea that they not be placed under government regulation. Such regulation, he said, "would gradually impoverish the Great Lakes vessel industry in the same manner that regulation and control have gradually impoverished every other carrier strangled by its tentacles."

For inland water carriers, Mr. Dann foresaw "greater diversity of performance with increased availability of especially designed equipment" and "more attention to extensive movement of less than present bargeload lots."

Mr. Musgrave dealt largely with the economics of pipe line transportation. He opposed application to it of the commodities clause and of any requirement for certificates of convenience and necessity, and also opposed "undue burdens" on private transport. He did, however, go on record as favoring removal of "the burden of excessive regulation" from the railroads "and other forms of transport." Like Messrs. Roush and Carmichael, he suggested that "the solution to transport problems won't be found by carriers fighting among themselves."

It was during this transport forum that the difference of opinion as to user charges was brought out. At one extreme was Mr. Carmichael, who drew the biggest laugh of the conference when he said he "preferred the term 'government assistance' to the word 'subsidy'" but won even more vociferous applause when he declared that he "expects the air lines to pay in the future a larger — though perhaps not the entire — part of the cost of the facilities they use." At the other extreme was Mr. Dann, who obviously considered user charges on inland waterways as a subject completely beyond the pale of polite discussion. Messrs. Bogan and Roush appeared to feel that buses and trucks are already paying as much as they should for their use, not only of present highways, but of the new ones for which they had asked.

What Traffic Managers Think

First of the three industrial traffic managers who addressed a conference session presided over by Cleve H. Pomeroy, president of the National Malleable & Steel Castings Co., was J. C. Allen, general traffic manager of Sears, Roebuck & Co. Speaking on "How Much Is Enough in Transportation Facilities?" Mr. Allen declared that, while exact quantitative determination was impossible, "regulating the demand for transportation facilities would have to mean arbitrary designation as to the facilities to be utilized. This would be but another form of distasteful and unsatisfactory regimentation."

The problem of adequacy is complicated, he added, by natural differences of opinion on the subject between carriers on the one hand and shippers on the other; by rate increases and changes in carrier costs, which have diverted traffic from some carriers to others and hastened industrial relocation; by inadequacy of industrial shipping facilities; by needs of national defense; and by failure of carriers and shippers fully to appreciate each other's problems.

Shippers, he conceded, have a real responsibility to carriers in such matters as demurrage, use of equipment and packing of shipments. They should know more about the basic costs of transportation, and be more conscious of "a national rather than a sectional approach." Industrial traffic departments, he said, "have too many shipping clerks and not enough traffic men."

On the other hand, he declared, carriers must continue to improve and make better use of their facilities. The railroads, he felt, could improve freight train speed, freight car movement, handling of l.c.l., and passenger and express business. His company, he said, could use, but does not have available, a satisfactory package service for passenger train movement at better than truck speeds. He criticized trucks for "picking and choosing" freight — "they are not true common carriers" — and both trucks and railroads "for injecting themselves into cases where

"A healthy and competitive transportation industry must be predicated upon the solvency of the carriers. . . . Insolvency of railroads . . . could create such a state of panic and insecurity as would . . . drag down other industries as well."—Interstate Commerce Commissioner Cross

"It is entirely possible, and quite likely, that conformity to the letter of the national transportation policy set forth in the Transportation Act of 1940 would have obviated the necessity for some of the recent rate increases for the railroads."—Lynne L. White, president of the NKP

Proposed changes in the transportation policy of the Chamber of Commerce of the United States were outlined by C. H. Beard, general traffic manager of the Union Carbide & Carbon Corp., and chairman of the chamber's subcommittee on transportation policy

they are not basically willing to offer the service" and for "forcing us into private trucking" even though "we have a responsibility to let common carrier trucks perform the service if they will do so at approximately the cost of private trucking."

To illustrate this latter point, the speaker remarked that a shipper cannot move his own truck by railroad flat car at the same rate as a common carrier trucker. Mr. Allen, "disturbed by the tendency to seek mathematical solutions by regimentation," concluded that "industry must develop a better understanding of the economics of transportation and a more intelligent use of our existing transportation facilities."

J. R. Staley, vice-president of the Quaker Oats Company, discussing "Changes I Would Like to See," said "there has been too much talking and not enough doing. . . . The answer to the problem is not in . . . palliatives aimed at living with the status quo . . . but in a change in operation, regulations and thinking on the part both of the transportation agencies and their users." "I should like to see," he continued:

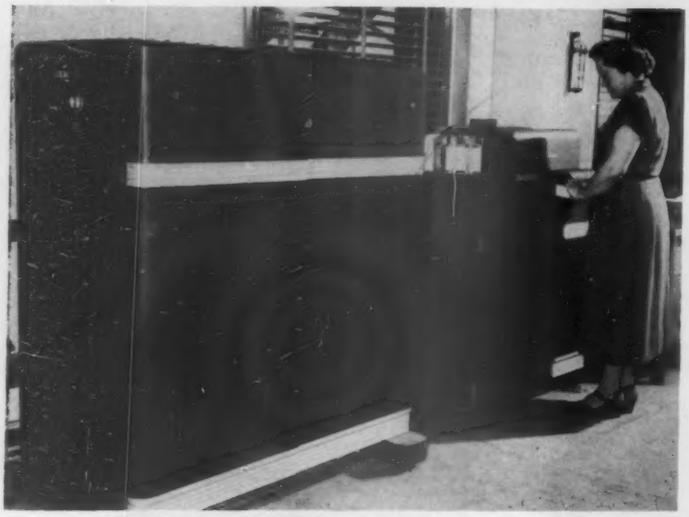
- "Railroads retire from the handling of l.c.l. and be divested of their interest in the Railway Express Agency, and let there be established competitive services with a diversity of ownerships to provide freight and express forwarding service. . . . The railroads as such should handle only carload traffic. . . .
- "The right of the shipper to route his l.c.l. shipments withdrawn . . . if railroads are required to continue to handle l.c.l. . . .
- "A system of incentive carload rates. . . .
- "The turning of the worm in regard to head-end and passenger service. . . .
- "The law changed so that periodically carriers which are operating money-losing services be required to justify those services or else drop them. . . .
- "The long-and-short-haul clause repealed . . . and, meantime, the commission's administration of it drastically changed. . . .
- "The power of the commission to suspend rates withdrawn, and its authority to prescribe rates for the future limited to a period of one year. . . .
- "The carriers make an honest effort to cut down on their paper work. . . .
- "The commission set up some facility for rate orders to be reviewed by rate and tariff men instead of lawyers."

The third traffic speaker, Charles W. Braden, general traffic manager of the National Distillers Products Corporation, agreed with Mr. Allen that industrial traffic men are getting "fed up" with the "wailing wall" tactics of the railroads, but asserted that there is a definite need for less regulation. "The first essential of economic regulation," he said, "is equality of regulation. . . . Equality should be brought about by removal of restrictions from the more stringently regulated modes of transportation. Regulation should be confined to prevention of abuses, unfair practices, and excesses, rather than extending to responsibilities of management."

Like several of the other speakers, Mr. Braden felt that "coordination of all available forms of transport" is "essential to the development of maximum service at minimum cost"; he agreed with Mr. Allen, for example, that the railroads should be given greater opportunity to use coordinated truck services, and with several other speakers who advocated greater freedom in abandonment of unprofitable lines and services. He likewise joined with the Sears, Roebuck traffic manager in stating that "efforts of for-hire carriers should be directed to the objective of making their services so complete, convenient and economical, relatively, that in the aggregate it would tend to discourage private transportation by reason of equal or superior for-hire service."

C. H. Beard, general traffic manager of the Union Carbide & Carbon Corp., went farther than anyone else, however, in advocating coordination of different types of transportation under common ownership. As chairman of a subcommittee on national transportation policy, he vigorously defended the principle of permitting "operators of one form of transportation service to operate other forms within reasonable territorial limits" where such common ownership "would be in the public interest and would not unduly restrain competition." He "sees no harm or danger," he declared, in consolidation of all transport facilities into a few — "perhaps 20 or 25" — large systems, competing with each other, but each offering "all needed types of service — rail, highway, water, air or pipe line."

His committee, Mr. Beard reported, supported in general the national chamber's present transport policy.



Modern accounting equipment speeds up the process of getting figures necessary for intelligent management decisions

How to Cut Operating Costs Through Better Budgeting

Budgets should be prepared by finance officer rather than second and third echelon officers—Technique of master and secondary budgets

By R. F. BAUMAN

This article by a former railroad officer sets forth a specific plan for railroad cost control by means of annual and monthly departmental and system budgets. It is published to focus attention on latent possibilities in this direction, with the hope that it may inspire constructive comment.

Cost control, through budgets, is one very definite way in which railroads can improve their operational and financial situation, and thus ease the squeeze which rising prices and regulatory procedures are putting on them. The function of determining expenditures for the various operating groups belongs in the executive offices, where all information necessary for establishing the budget is available, such as prospective earnings, fixed and overhead charges, and where changes can be taken into consideration. But many railroads place responsibility for budgeting on second and third echelon officers —regional and divisional managers.

To give a regional manager this responsibility in his territory without access to all the information is almost like giving a yardmaster several trains to make up without giving him switch engines with which to do the work. Many of these officers, even under such circumstances, are doing a good job of managing the company's money. But many more of them could improve the operation of their organizations if given a pattern of expenditures to follow, a standard from which to judge their own effectiveness and that of the employees under their direction.

A number of changes would be needed in most existing methods of railroad budgeting to assure a positive cost control. To employ the method I am suggesting to attain that objective, it would be necessary to:

1. Project the budget for one year in advance at the end of each year;
2. Place the responsibility for establishing this budget in the hands of the vice-president of finance rather than the supervisors in charge of the various divisions of the railroad;
3. Use this master budget to control monthly expenditures, either through staff personnel or through consultation with the supervisory group.

The development of the master budget—that is, one projected by months for the succeeding year—is relatively easy. The first step is to analyze the traffic picture and forecast the year's revenue anticipated from this traffic by months and record it at the bottom of the master operating budget sheet, a sample of which forms Table 1. This is, of course, the usual practice of most roads now.

The next step is to reduce the total revenue expected by deducting the following:

1. Fixed charges the railroad will experience during the year;
2. Any unfavorable equipment rental balance;
3. Necessary funds for reserve and depreciation;
4. A reasonable return to the stockholders.

The resulting balance represents the amount *desirable* to be used for operating expenses.

At this point a review of operating and revenue figures for possibly ten years past will guide the formation of a pattern of expenditures, by departments, and their relation to revenues. If they exist, years in which a normal operation was experienced obviously are preferable. If it is not possible to find at least five or six years of normal operation, those years for which data can be revised to exclude unusual commodity movements are most suitable. Then, with this determined amount of operating expenses and using these years of

experience, the master budget, by departments, can be set up as illustrated in Table 1, allocating that proportion of the determined yearly operating expense to each department, each month, in the same ratio in which it was found to apply monthly over the period taken as normal.

Six Years' Experience

On the particular railroad where this budget was applied, six years' experience was analyzed as the base period. The first consideration was the derivation of revenue. The only unusual movement was some bridge traffic in oil which was easy to eliminate from revenue and operating expense. The expenditures were plotted by year and by department, as in Table 1, for each month and the percentage which each department spent, compared to the whole for the railroad, was recorded by monthly and yearly totals. It was finally determined that monthly expenses were in a ratio to the total yearly expenses, for all departments, as follows:

January	8.0	July	9.4
February	7.6	August	8.8
March	8.4	September	8.3
April	8.2	October	8.2
May	8.7	November	7.6
June	9.0	December	7.8

Likewise the monthly breakdown of the total expense as allocated to departments was in the following ratio:

Transportation	51.0
Maintenance of Way	16.6
Maintenance of Equipment	12.7
Traffic	4.0
General	4.4
Car Hire	11.3

Note: Car hire might be excluded from operating expense for roads with relatively large ownerships.

In November 1947 the budget was projected for the entire year 1948. As indicated in Table 1, the projected expenditures for each department were listed under each month of the year. In a second column under each monthly heading we carried the cumulative total for each of the three items listed above. At the bottom of the sheet is a line for the expected revenues per month; a line for the actual revenues; and a line for the difference between the two. And lastly, a line for the operating ratio per month.

It is important to compare the ratio of operating moneys and the forecasted gross revenue to like figures for the years which are being used as the norm. If the ratio of projected operating expenses to projected total revenue is too far out of line, it may require some re-

A transportation department's ability to stay within budgets depends on what expenses it is required to assume for other departments

TABLE 1—A MASTER OPERATING BUDGET—(Condensed)

		JANUARY		FEBRUARY		JUNE		JULY		DECEMBER	
		Monthly	Accum.	Monthly	Accum.	Monthly	Accum.	Monthly	Accum.	Monthly	Accum.
Transportation	Allowed	$312,300	.....	$296,400	$608,700	$345,200	$1,936,950	$379,000	$2,315,950	$331,800	$4,000,000
	Actual	367,234	.....	396,395	763,629	315,258	2,135,259	320,555	2,455,814	309,606	4,011,115
	Over and Under	−54,934	.....	−99,995	−154,929	29,942	−198,309	58,445	−139,864	22,194	—11,115
Equip. Rental	Allowed	69,370	.....	61,623	130,993	91,276	458,874	101,428	560,302	60,821	890,500
	Actual	70,000	.....	85,950	155,950	78,446	521,472	81,262	602,734	72,197	963,377
	Over and Under	−630	.....	−24,327	−24,957	12,830	−62,598	20,166	−42,432	−11,376	−72,877
Traffic	Allowed	24,704	.....	24,736	49,440	28,064	160,512	26,240	186,752	26,400	320,000
	Actual	27,149	.....	28,365	55,514	32,490	179,852	31,255	211,107	32,158	362,675
	Over and Under	−2,445	.....	−3,629	−6,074	−4,426	−19,340	−5,015	−24,355	−5,758	−42,675
General Exp.	Allowed	28,095	.....	26,469	54,564	29,133	169,643	28,683	198,326	30,795	346,000
	Actual	31,888	.....	30,715	62,603	31,529	186,143	31,754	217,897	32,095	379,234
	Over and Under	−3,793	.....	−4,246	−8,039	−2,396	−16,500	−3,071	−19,571	−1,300	−33,234
Miscellaneous	Allowed	300	.....	300	600	300	1,800	300	2,100	300	3,600
	Actual	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Over and Under	300	.....	300	600	300	1,800	300	2,100	300	3,600
Maint. of Equip.	Allowed	76,400	.....	79,200	155,600	86,100	487,200	91,400	578,600	74,200	1,000,000
	Actual	115,951	.....	110,625	226,576	106,942	679,835	110,766	790,601	93,040	1,273,756
	Over and Under	−39,551	.....	−31,425	−70,976	−20,842	−192,635	−19,366	−212,001	−18,840	−273,756
Maint. Way & Str.	Allowed	120,640	.....	107,640	228,280	125,060	705,640	112,580	818,220	92,900	1,300,240
	Actual	112,648	.....	98,754	211,402	125,309	694,576	127,127	821,703	131,226	1,376,492
	Over and Under	7,992	.....	8,886	16,878	−249	11,064	−14,547	−3,483	−38,326	−76,252
TOTAL	Allowed	631,809	.....	596,368	1,228,177	705,113	3,920,619	739,631	4,660,250	617,216	7,860,340
	Actual	724,870	.....	750,804	1,475,674	689,974	4,397,137	702,719	5,099,856	670,322	8,366,649
	Over and Under	−93,061	.....	−154,436	−247,497	15,159	−476,518	36,912	−439,606	−53,106	−506,309
	Estimated	660,000	.....	630,000	1,290,000	748,000	4,147,000	813,000	4,960,000	692,000	8,600,000
	Actual Revenue	555,810	.....	635,572	1,191,382	657,457	3,935,973	655,924	4,591,897	599,365	7,951,497
		−104,190	.....	5,572	−98,618	−90,543	−211,027	−157,076	−368,103	−92,635	−642,503
	1947	117.8%	.....	104.6%		93%		95%		99.8%	
	1948	93.3%	.....	90.7%		90%		101%			

TABLE 2—A MONTHLY TRANSPORTATION DEPARTMENT BUDGET

July

Operating Deficit for Five (5) Months—$228,251

Acct. No.		Monthly Allowed	Monthly Actual	Daily Allowed	Daily Actual
371	Superintendence	$17,200		$ 620	
372	Dispatching Trains	5,200		168	
373	Station Employees	44,500		1,436	
374	Weighing, Insp. & Demurr. Bureaus	245		8	
375	Coal & Ore Wharves	2,500		80	
376	Station Supplies and Expenses	3,000		97	
377	Yardmasters & Yard Clerks	10,000		322	
378	Yard Conductors and Brakemen	25,500		822	
379	Yard Switch & Signal Tenders	1,300		42	
380	Yard Enginemen	8,100		261	
381	Yard Motormen	7,300		235	
382	Yard Switching Fuel	4,500		145	
383	Water for Yard Locomotives	100		3	
386	Lubricants for Yard Locomotives	400		13	
388	Enginehouse Expenses—Yard	9,000		290	
389	Yard Supplies and Expenses	600		19	
390	Operating Jt. Yd. & Terminals—Dr.	2,500		81	
391	Operating Jt. Yd. & Terminals—Cr.	—600		—19	
392	Train Enginemen	7,000		219	
393	Train Motormen	26,000		839	
394	Train Fuel	35,000		1,125	
397	Water for Train Locomotives	700		22	
398	Lubricants for Train Locomotives	2,500		81	
399	Other Supplies for Train Locomotives	800		25	
400	Enginehouse Expenses—Train	13,500		435	
401	Trainmen	48,500		1,564	
402	Train Supplies and Expenses	7,000		226	
404	Signal and Interlocker Operation	1,500		48	
405	Crossing Protection	17,000		548	
407	Telegraph & Telephone Operation	220		7	
410	Stationery and Printing	1,500		48	
411	Other Expenses	500		16	
412	Operating Jt. Tracks & Facilities—Dr.	2,200		71	
413	Operating Jt. Tracks & Facilities—Cr.	—2,200		—71	
414	Insurance	1,500		49	
415	Clearing Wrecks	1,000		32	
416	Damage to Property	600		19	
417	Damage to Livestock on Right-of-Way	200		6	
418	Loss and Damage—Freight	6,000		193	
419	Loss and Damage—Baggage	60		2	
420	Injuries to Persons	6,000		193	
		$318,425		$10,320	

vision of the deductions from gross revenue, or revisions of general policy as reflected in the expense situation.

The master budget as shown in Table 1 is developed for, and used by, top executives only, vice-presidents and higher. The reasons are twofold:

1. Coordination of various departments should be directed through the offices of the vice-presidents for better control over expenditures within their own organizations. This may appear a little stringent, but if the detailed operations in the various departments are checked, instances often will be found of charges to one department created at the insistence of another department actually incurring the expense. This is one source of cost reduction which will appear as a result of budgetary control of costs. An example of this cross-charging is assignment of engine watchmen by the maintenance of equipment department, where the charge is to the transportation department.

2. For more effective supervision it is desirable that the supervisor work toward a goal for his own territory and not be too much concerned with the expenditures in another territory. The total amount of information given in the master budget is too broad for distribution to all supervisory personnel.

A secondary budget, or departmental master budget, may then be developed, with those major headings included which are peculiar to the department indicated. This may be broken down into the allocation for each division of the road, projected by months for a year in advance and developed by the vice-president of finance as a result of: (1) further breakdown of expenditures during the normal period (key period); and (2) reviewing percentages spent by each division. These budgets are forwarded to the superintendents of each division and become the departmental cost control standards.

The master budget and departmental budgets now become a guide for setting up the monthly budget (Table 2), which takes into account the most up-to-date information regarding revenues and expenditures that could not be foreseen in the previous year—reflecting effects of strikes, embargoes, national emergencies, etc.

Monthly Departmental Budgets

During the fourth week of each month the division heads, using the departmental master budget, develop monthly departmental budgets (Table 2). These will be broken down into the individual items as shown on the "four-page" I.C.C. report for the department concerned and will consider changes in operating requirements that will affect the allowed figures in the master budget. Looking at the total figure for July, shown in Table 2, and comparing this with the amount allowed for the department on the master budget, it is apparent that actual expenditures were $61,000 less than allowed expenditures. Reference to the master budget also reveals how close the actual transportation expenditures in Table 1 came to meeting the monthly allowance in Table 2 for July. This was not happenstance but a result of carefully analyzing each account for the known expenditures during the month of June and, in this case, deducting from the various accounts amounts for services known to be unnecessary in the July budget. This is where cost control emanates from budget control.

Once the budget is established and fully understood by all top personnel, it is possible to study each operating expense account for any department. Then, through an organized plan, working in conjunction with the departmental supervisory force, the finance officer can determine the necessary and expendable items involved in each account. This may sound like a large order, but it is not as difficult as it would at first appear.

This actually was done with the transportation phase of the railroad for which the budget in Table 1 was prepared. In the first half of the year there was a tendency for the transportation department to spend considerably more than the allowed monthly amount. By analyzing in detail many of the individual accounts listed in Table 2 and eliminating many avoidable expenses, it was possible to end the year with that department's allowed and actual expenditures practically in balance. The yearly expenditure of the transportation department for 1948, incidentally, not only was the lowest, dollarwise, for any year during or after the war, but in that year as well, transportation expenses were smaller in proportion to total expenses than they had been in that same period.

It is not to be expected that in the first year of operations under this system any carrier will receive the maximum benefit of the program. During that first year it probably will be necessary to re-allocate expenses among divisions and departments, perhaps several times, as experience with the technique accrues. However, railroads using such cost control measures can expect to bring costs down to the point where actual operating costs will equal the budgeted operating cost. After the first year under such a budget, expenditures can, no doubt, be reduced even more, thus possibly allowing for more additions of a capital nature out of income.

Air Motion Around Streamline Trains

Technical analysis showing absence of air pressures tending to draw objects into or under passing trains

By V. L. STREETER* and R. S. HARTENBERG†

The distribution of air pressure and velocity around a high speed streamline train moving through level country without adjacent buildings is discussed from an engineering viewpoint. There are many popular misconceptions as to pressure forces exerted upon objects near trains and, particularly in the cases of untrained observers, psychological factors are probably present that affect a person's reaction to the passing of a train much more than the physical forces involved. Many people, including non-railroad engineers and physicists, are convinced that one may be sucked into the side of a train when standing close to it. This paper discusses the air motion and pressure distribution set up by a single high speed train, and shows how some of the misconceptions arise from lack of understanding of the application of principles of fluid mechanics.

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A train moving rapidly over level ground pushes air out of the way in front of it, drags air along with it on its sides, bottom and top, and evacuates a space immediately behind it that is filled in with air. Due to the air moved forward in the vicinity of the train, a backward flow of air occurs at greater distances from the train to return an equal volume of air.

In front of the train the air is pushed forward and somewhat to the side. To a person standing near the tracks this air flow is felt as a blast pushing him diagonally away from the front of the locomotive. Near the side of the train the person feels a strong and highly turbulent stream of air moving substantially parallel to the side of the train and in the same direction as the train. Two or three feet from the side of the train at its rear end, the returning air velocity that fills the space vacated by the train is so small that it is not noticeable. The return flows along the train are so distributed throughout such a large volume that they are

undiscernable to one standing back from the tracks.

There is no primary flow toward the side of the train or toward the space under the train. The highly turbulent or fluctuating secondary flows of low strength move dust and paper around in a most erratic and spectacular manner. The aimlessness of the indicated motions indicate the lack of a determined flow toward the bar bottom or side.

Analytical Approach to Air Motion

The air flow resulting from the motion of a streamline train is unsteady—that is, the velocity of air at a given point varies with the time. It is also a case where much of the air motion is caused by frictional forces along the sides and top and bottom of the train. Due to these, the simple Bernoulli equation, relating the constancy of pressure and kinetic energy at all points on the same streamline, does not apply.

Analytically the flow can best be set up as due to the translation of a long thin body through an ideal or frictionless fluid plus the velocity distribution set up by dragging flat plates through an otherwise still atmosphere in which friction exists, where the flat plates represent the sides, top and bottom of the train. The superposition of these two flows, one due to a body in a frictionless fluid and the other due to surface friction, will give a good general picture of the air motion.

The primary motion of air along the side of the train is caused by frictional action of the side of the train. It is a boundary layer growth where the action of the side of the train is to drag air along parallel with it. This layer of fluid affected by friction is thin near the head of the train and thickens with distance from the locomotive. It may be several feet thick at the rear end of the train. With velocities set up by the dragging of a plate, such as this case, the pressure gradient normal to the plate is negligible. That is, there is no appreciable variation in pressure from the side of the train outward.

Directly in front of the train the pressure is higher at the locomotive and decreases with distance from it, as evidenced by the fact that the air must move out of the way of the train.

At the rear of the train the pressure is slightly less than atmospheric, which causes the air to fill in behind the last car. This is of the form of a "sink," and as the velocity decreases as the inverse square of the distance, it becomes so low as to be unnoticeable two or more feet from the side of the train.

Bernoulli's Equation Inappropriate

Bernoulli's equation, written in the simple form, that the sum of the kinetic and pressure and potential energies remains a constant, has been derived on the basis of four assumptions:

(1) The flow is steady, i.e., conditions at any point do not change with the time;

(2) The fluid is considered to be frictionless, or, in other words, the viscosity is assumed to be zero;

(3) The fluid is incompressible;

(4) Only points along a streamline are considered.

Many engineers and scientists have completely forgotten the importance of these assumptions a few years after studying fluid mechanics, and remember only that, when the velocity of a fluid increases, the pressure decreases, and vice versa.

In considering the pressure distribution around a streamline train, three of the four assumptions are not realized: The flow is not steady; friction is the cause of much of the fluid motion near the side of the train; and consideration of pressure gradient normal to the side of the train deals with not a single streamline but crosses streamlines. The assumption of incompressibility introduces a very small error and is therefore justified.

The conclusion frequently arrived at by many engineers, superficially considering flow around the train, is that the high velocity near the side of the train is accompanied by low pressure, thereby resulting in a decrease in pressure as the train is approached from the side, or a "suck-in" condition causing persons or other objects near the track to be subjected to a pressure force impelling them into the side of the train, or under it.

This misapplication of the Bernoulli equation leads to completely erroneous conclusions. The high velocity air at the side of the train is due to work being done on the air, or energy being added to the air by friction as the train is pulled along, and it is not obtained by accelerating the air by means of a pressure gradient.

Impossibility of "Suck-In"

Without consideration of Bernoulli's equation and boundary layer growth along a moving plane surface, application of the principle of continuity shows the impossibility of a pressure gradient toward the train side. As the air can be considered incompressible without appreciable error up to speeds much higher than obtained by trains, the continuity principle can be stated in the following form: the rate of flow into any volume must just equal the rate of flow out of the same volume at any instant.

If low pressures were assumed near the side of the train, i.e., a pressure gradient toward the train side, then a huge flow of air would take place toward the train, into its sides, top and bottom. By the principle of continuity this large inflow would have to be matched by an equal outflow, and there is no place for such an outflow to occur. Hence, there can be no suck-in along the side of a high-speed streamline train.

1. The movement of a high-speed streamline train along level ground does not give rise to pressure gradients toward the side of the train that would tend to move persons or objects into the side of the train or under the train.

2. The air velocity near the side of the train is set up by friction forces exerted on the air by the side of the train, similar to boundary layer development due to a towed flat plate.

3. The simple Bernoulli's equation does not apply.

4. Continuity shows the impossibility of suck-in.

5. Regarding trains other than streamlined, such as freights and those made up of older cars, the foregoing conclusions still apply: The action of the air is similar but the forces are less strong because of the usually lower speeds and the relatively rougher car-sides.

"We are of the opinion that the large trucks with heavy cargoes definitely damage the highways far in excess of the proportionate gross weight of such trucks compared to the gross weight of ordinary vehicles. Data resulting from [the Maryland] test clearly substantiate our position that heavy commercial trucking has not been paying its fair share of Ohio's highway costs."—*T. J. Kauer, director of the Ohio Department of Highways, in an address at a meeting of the Columbus Traffic Club.*

ORGANIZATIONS

Mechanical Division Meets At San Francisco in 1952

Formal announcement has been made that the next annual meeting of the Mechanical division of the Association of American Railroads will be held in San Francisco, June 24, 25 and 26, 1952. Sessions of the meeting are scheduled for the Terrace Ball Room of the Fairmont Hotel, where convention headquarters will be located.

The **Transportation Association of America** has added the following to its board of directors for a period of three years: W. H. Day, manager, transportation department, Boston Chamber of Commerce; J. C. Richdale, vice-president, Esso-Standard Oil Co.; Robert S. Macfarlane, president, Northern Pacific; Walter F. Mullady, president of American Trucking Associations and president of the Decatur Cartage Company; and Chester C. Thompson, president, American Waterway Operators, Inc.

New officers of the **General Agents Council of Boston** were elected at the annual business meeting on December 17. Walter T. Sampson, general agent, Northern Pacific, was elected president, to succeed Joseph D. Gunther, general agent, New York Central. Other new officers are Vice-president, Harold D. Bovee, New England freight agent, Pennsylvania, and treasurer, Ray A. Hasenstab, general freight agent, Canadian Pacific. W. Douglas Goss, general agent, Chicago, Milwaukee, St. Paul & Pacific, was re-elected secretary.

Norman E. Carlson, who has been appointed assistant chief mechanical engineer of the American Car & Foundry Co. Mr. Carlson joined ACF after eight years' service with the Great Northern. His headquarters will be in New York. Mr. Carlson served in automotive engineering work with Swift & Co. in South St. Paul and Chicago from 1933 to 1939, when he joined Greyvan Lines in Chicago as operations manager, which post he held until he went to the G.N. in 1943 as assistant master carbuilder in the mechanical department

SUPPLY TRADE

Canadian Car & Foundry Net Income Shows Increase

The Canadian Car & Foundry Co. has reported that net profit for the fiscal year ended September 30, after providing for depreciation but before income taxes, was $2,109,282, compared with $1,269,752 for the preceding year. After deducting income taxes of $1,147,000, compared with $487,000, net increase in profit was $179,530. Orders for rolling stock on the company's books, the report added, should keep its car plants in full operation through 1952, provided essential material is available.

American Steel Foundries Sales Highest in History

Net income of American Steel Foundries for the fiscal year ended September 30, 1951, was $6,676,191, equal to $5.62 a common share, compared with $3,719,075, or $3.13 a share, in the preceding fiscal year, according to the recently released annual report. Sales totaled $116,755,916, highest in the history of the company, compared with $54,401,235. Total sales to the railroad industry during the fiscal year were approximately $80,100,000, the report said.

The mechanical rod packing and building maintenance divisions of the **Flexrock Company** have announced appointment of **Hinds & Associates, Inc.,** of Kansas City as their exclusive representative in Kansas, Nebraska, Oklahoma, Arkansas and western Missouri.

George J. Shannon, who recently joined the General Railway Signal Company as sales engineer (*Railway Age*, December 10, page 70). Mr. Shannon's headquarters are in New York

H. H. Hanft has been appointed assistant to the manager of the industrial department for the **Westinghouse Electric Corporation.** Mr. Hanft had been manager of the land transportation section.

The **Babcock & Wilcox Tube Co.** will transfer its assets and business to the **Babcock & Wilcox Co.,** its sole stockholder, on December 31. The business will continue to be operated as the tubular products division of Babcock & Wilcox.

The **K. W. Battery Company** has announced completion and occupancy of a new $500,000 manufacturing plant, research laboratory and executive office at 3555 Howard street, Skokie, Ill.

Roy J. Heinz has been elected vice-president of the **Pittsburgh Steel Foundry Corporation** in charge of operations at its Glassport, Pa., foundry. Mr. Heinz has been general foundry superintendent at Glassport for the past six years.

Russell H. Coe has been appointed to represent the **Tapecoat Company,** on the firm's coal tar tape for pipe joint protection, in Ohio, West Virginia and western Pennsylvania.

S. M. Lawrason has been appointed manager of the Baton Rouge, La., branch of the **Graybar Electric Company.** He formerly was sales manager of the branch, which was opened early this year.

Fenwal, Inc., has announced appointment of **Joseph P. Maguire** as its new sales representative for Louisiana. Mr. Maguire's offices are at 208-209 Vincent building, 615 Commercial place, New Orleans.

The **Timken Roller Bearing Company** has appointed **Sherman R. Lyle** of its Cleveland office as district manager of the steel and tube division, northern Pennsylvania and New York state district. Mr. Lyle has been with Timken as sales engineer for the Cleveland district since 1946. His new office will be in Buffalo.

Joseph T. Ryerson & Son, Inc., has acquired the stocks and warehouse facilities formerly owned by the **Seattle Steel Company** and the **Inland Empire Steel Company.** Seattle Steel and Inland Empire Steel are in process of dissolution.

OBITUARY

Harry M. Pflager, director and former senior vice-president of General Steel Castings Corporation, died recently at St. Louis.

EQUIPMENT AND SUPPLIES

FREIGHT CARS

Freight Cars Delivered—A Correction

The headline on a story in this department last week incorrectly said "9,824 Freight Cars Delivered in September." The month, of course, as indicated in the text of the story, should have been November.

LOCOMOTIVES

Backlog of Locomotives On Order Totals 1,809

Class I railroads had 1,809 new locomotives on order December 1, of which 1,788 were diesel-electric, 20 steam and one electric, the Association of American Railroads announced last week.

This figure compares with 1,657 new locomotives on order December 1 a year ago. The 1950 figure included 1,634 diesel-electrics, 17 steam and six electric locomotives.

In the first 11 months of 1951, Class I roads installed 2,366 locomotives, compared with 2,132 in the first 11 months of 1950. The 1951 total included 2,346 diesel-electric, 17 steam and three electric locomotives, while the 1950 total included 2,111 diesel-electrics, 11 steam and 10 electrics.

New locomotives placed in service during November 1951 totaled 231, of which 229 were diesel-electric, one steam and one electric.

The **Baltimore & Ohio** has arranged to lease 55 diesel-electric freight locomotive units from the Equitable Life Assurance Society. The locomotives will involve a total investment of $9,559,035 and are to be delivered between April and September next year. Thirty-seven 1,500-hp. units will be built by the Electro-Motive Division of General Motors Corporation; 12 1,600-hp. units by the American Locomotive-General Electric Companies; and 6 1,600-hp. units by the Baldwin-Lima-Hamilton Corporation.

When these units are delivered, the B. & O. will have a diesel fleet of 695 units, including 386 freight, 66 passenger and 243 switching units. In addition, the Staten Island Rapid Transit, a B. & O. subsidiary, has nine diesel switchers, and the Baltimore & Ohio Chicago Terminal, another subsidiary, has 17 switching units, including eight on order. The total B. & O. system diesel fleet will number 721 units by next fall.

The **Erie's** board of directors has authorized purchase of 42 diesel-electric locomotive units costing $6,000,000. Also authorized were additional diesel servicing facilities to cost $1,500,000. The motive power will include 30 1,500- and 1,600-hp. road-switching units and 12 1,000- or 1,200-hp. switching units. Maintenance facilities will be constructed at Brier Hill, Ohio, Kent and Meadville, and present facilities at the Cleveland diesel shop will be extended.

"This purchase will be our last big bite toward complete dieselization," Paul W. Johnston, Erie president, said. "It will eliminate all steam service except for short-haul commuter service in the New Jersey area, which is now 60 per cent diesel equipped. We will tackle that next when financial conditions permit." He estimated it would take $6,500,000 more to complete dieselization and that it would be done progressively by buying a few units at a time. The new diesels will be assigned to the Mahoning division between Cleveland and Youngstown for hauling ore trains from lake vessels to steel mills, and between Kent and Meadville in regular freight service. Deliveries are expected to begin in mid-1952.

General Electric Company, Schenectady, N. Y., has been awarded a contract to build 14 diesel-electric standard-gage locomotives for the **Transportation Corps.** G.E.'s bid of $63,100 each, F.O.B. Erie, Pa., was lowest of three submitted. The locomotives are designated at "dual engine, 44-ton, 0-4-4-0." G.E. said it would deliver two of the locomotives in March 1952, and the balance at the rate of two per week, beginning the last week of October 1952.

Eleven of these locomotives are for use by the Air Forces, and three are for the Navy. The T.C. purchases railroad rolling stock for all the services.

IRON & STEEL

The **Bessemer & Lake Erie** has ordered 2,795 tons of rail from the United States Steel Company.

The **Pittsburgh & West Virginia** has ordered 1,215 net tons of 115-lb. rail from the United States Steel Company.

The **Seaboard Air Line** has ordered 45,000 tons of rail from the Tennessee Coal, Iron & Railroad Co. and the Bethlehem Steel Company.

SIGNALING

The **Chicago, Rock Island & Pacific** has ordered from the Union Switch & Signal Division of Westinghouse Air Brake Company materials to install automatic signaling on 212 miles of single track between Waxahachie, Tex., and Houston. The order includes color-light signals, switch circuit controllers, relays and housings. Field installation will be handled by railroad forces.

The **Missouri Pacific** has ordered equipment from the General Railway Signal Company for installation of an NX electric interlocking at North Little Rock, Ark. The sectional type control machine will have 19 track indication lights, 18 entrance knobs, 18 exit buttons and 10 test keys for control of 16 switch machines, 1 switch lock, and 18 signals. Included in this order are type B relays, model 5D switch machines, and types G and L color-light signals.

CONSTRUCTION

Atlantic Coast Line.—The following projects have been authorized at the indicated probable costs: Track facilities at Carters, Fla. ($237,024), and Immokalee ($43,319); and industrial tracks at Auburndale, Fla. ($26,847).

Central of Georgia.—The I.C.C. has authorized this road to construct and operate a 2.9-mile line, from near Lavender, Ga., to Coosa. The line, costing an estimated $280,160, will serve proposed new plants of the Georgia Power Company and the Rome Kraft Company. The road estimates net railway operating income from the new line will be approximately $448,600 annually.

Erie.—See Equipment & Supplies—Locomotives in this issue.

Missouri Pacific.—Diesel servicing facilities at St. Louis will be expanded to accommodate the greater number of locomotives that must be serviced there — 150 instead of the present 90 — when units now on order are delivered next year. The 30-stall roundhouse, a St. Louis landmark for almost 100 years, will be dismantled. The total cost of the project has been estimated at $539,000. With the delivery of 126 locomotive units now on order, the M. P. will no longer operate any steam locomotives in the St. Louis area.

Norfolk & Western.—The following companies have received contracts, at the indicated estimated costs, for various phases of work in connection with this road's new classification yard at its Lamberts Point piers near Norfolk, Va. (*Railway Age*, October 15, page 119); General Railway Signal Company, for a car retarder system ($437,750); J. P. Pettyjohn Company, Lynchburg, Va., for a pier shop and storage building ($337,000), and a car retarder building ($40,000); American Dewatering Corporation, New York ($67,500); E. V. Williams Company, Norfolk, for grading ($80,000); and the McLean Contracting Company, Baltimore, for a bulkhead ($55,840). C. H. Jimison & Sons, Huntington, W. Va., has been awarded a contract for an oil storage building at Portsmouth, Ohio, at an estimated cost of $204,000.

The following projects have been authorized, at the indicated probable costs: Traveling sidewall loaders for coal pier 4 ($1,080,000), 600-car coal storage yard ($254,000), and thawing plant for coal pier 4 ($25,000), all at Lamberts Point; purchase of roadway machines for system-wide distribution ($247,750); freight car repair facilities, Columbus, Ohio ($165,000); a 2,000,000-gal. concrete reservoir and allied work at Roanoke, Va. ($335,000); short-arm crossing gates at Norfolk ($185,000) and at Blackstone, Va. ($25,100); respacing automatic signals from Roanoke to Winston-Salem, N. C. ($130,400); coaling and sanding station at Columbus, ($110,000); switching and running track at Calera, Va. ($122,700); centralized traffic control from Poe, Va., to Disputante ($105,200); four automatic substations from Waynesboro, Va., to Hagerstown, Md. ($60,000); purchase of six electric trucks and two fork lift trucks for Lynchburg, Va. ($41,000); improvements to dining car commissary at Roanoke ($27,000); and improvements to bridge No. 1104 at Glen Jean, Ohio ($23,500).

Pacific Fruit Express. — Bids were opened at San Francisco recently for a contract covering a major part of the $1.5 million rehabilitation program for the Roseville, Cal., light repair yard. K. V. Plummer, vice-president and general manager of the company, anticipating that the work will be completed by next May, said the project will increase the number of refrigerator cars available to shippers by speeding the servicing of cars sent to the yards for cleaning and minor repairs. In addition to laying heavier rail on the more than five miles of track, new air and water lines will be installed, improved drainage will be provided, and track centers will be respaced to permit service trucks to drive between the tracks on paved drives. The yard extends for approximately one mile along the north side of the Southern Pacific's new retarder yard currently under construction west of Roseville near the P.F.E.'s shops (*Railway Age*, July 16, page 68).

Seaboard Air Line.—The following projects have been authorized at the indicated estimated costs: Reconstruction of Kingsley Creek bridge near Fernandina, Fla. ($351,090), and a freight station at Hartsville, S. C. ($77,873.)

FINANCIAL

Atlantic & East Carolina.—*Modification of Lease.*—Modification of this road's lease agreement with the Atlantic & North Carolina has been approved by the I.C.C. The A.&N.C., a 94-mile line, is owned by the state of North Carolina but has been operated by the A.&E.C. since 1939. The amended agreement, effective January 1, 1952, provides for somewhat higher rental payments to the A.&N.C. The commission authorized the latter road to issue promissory notes of $500,000, and the additional rental payments are designed to meet payments on the notes. The state advanced the $500,000 to the A.&N.C. to pay for new equipment and rehabilitation work. This includes relaying 20 miles of rail, strengthening a drawbridge at New Bern, N. C., and acquisition of one or two diesel-electric locomotives.

Central Vermont. — *Acquisition.*—Division 4 of the I.C.C. has approved this road's application for authority to purchase all properties, franchises, and assets, except liquid assets, of the New London Northern. The C.V., a subsidiary of the Canadian National, already controls more than 99 per cent of the N.L.N. stock, but now desires to consolidate ownership of the two roads into a single title to promote efficiency and realize economies. The New London road extends from Brattleboro, Vt., to New London, Conn., approximately 131.7 miles. (*Railway Age*, January 22, 1951, page 42.)

Great Northern.—*Stock Option.*—A stock option plan for officers and key employees of the Great Northern has been filed with the I.C.C. The plan, which would require I.C.C. approval, was adopted by the G.N. board of directors in October; and it provides that up to 150,000 shares of G.N. stock be optioned among "35 to 55" officers and key employees. The shares are held in the road's treasury or were authorized but never issued.

A committee of the board of directors would administer the plan, and would designate the employees eligible to participate. Among other things, the plan says that no more than 15,000 shares may be optioned to any participant; that no option shall go to an officer or employee who has reached 70; and that the sales price be 100 per cent of the market valu at the time an option is granted. Options granted would not be generally transferable, and the board of directors would reserve the right to amend, suspend or discontinue the plan. G.N. stockholders will vote on the proposal at their January 17, 1952, meeting.

Gulf, Colorado & Santa Fe.—*Trackage Rights.*—The I.C.C. has approved this road's trackage rights agreement with the Texas & Pacific, covering operation of G.C.&S.F. passenger trains between Dallas, Tex., and Ft. Worth. The agreement dates from 1926, but I.C.C. approval was not then considered necessary because the G.C.&S.F. reached no new territory. Its own line between Dallas and Ft. Worth was 82 miles, however, while the T.&P. line was only about 31 miles. The 1926 agreement was amended in 1948 to increase monthly payments to the T.&P. These now amount to $4,000 a month for one passenger train each way daily, plus $2.11 per train-mile for extra sections.

Laramie, North Park & Western.—*Absorbed by Union Pacific.*—Effective December 1, the 111-mi. "North Park" became the Coalmont branch of the Union Pacific. When built in the early years of the present century, the line was intended to tap Utah's Wasatch county and the area around Grand Junction, Colo. While falling short of this goal, the road has nevertheless developed timber, oil, coal, cattle and minerals traffic from Coalmont and intermediate points, which it delivers to the U.P. main line at Laramie, Wyo. The road owns 20 freight and three miscellaneous cars, plus a snowplow. Motive power — consisting of a diesel road-switcher and two steam locomotives — has been rented from the U.P. as conditions warrant. The line has been wholly owned by the Union Pacific.

Owasco River Railroad.—*Acquisition.*—This road has applied to the I.C.C. for authority to acquire and operate about one mile of trackage in Auburn, N. Y. The tracks were formerly a part of the switching facilities of the International Harvester Company plant at Auburn. The Owasco is a switching line, controlled by the New York Central and the Lehigh Valley.

White Pass & Yukon Route.—*Sale.*—All issued debenture and share capital of the four companies comprising the White Pass & Yukon Route has been acquired by a new Canadian company—the White Pass & Yukon Corp.—with headquarters in Vancouver, B. C. Officers and directors of the new firm are: Frank H. Brown of Vancouver, president; Clifford J. Rogers of Seattle, managing director; Ralph D. Baker, Vancouver; Robert B. F. Barr, Toronto; and Norman F. W. H. D'Arcy and Ivor J. Crosthwaite, both of London, England. Mr. Rogers will continue as president of the operating companies and C. F. Abrams, Skagway, Alaska, as general manager.

The new company has issued and sold $2,000,000 of 4½ per cent sinking fund debenture stock, $1,700,000 of 5 per cent debenture stock with a 50 per cent conversion right, and 500,000 common shares. The route consists of 110 mi. of narrow gage railroad from Skagway to Whitehorse, B. C.; an oil pipe line over the same route; a tank farm at Whitehorse; and a large fleet of trucks, oil tankers and busses providing regularly scheduled service from Whitehorse over some 2,000 mi. of the Alaska Highway. In summer the company also operates passenger and freight steamships, tugs and barges down the Yukon river and through lakes in the Whitehorse and Dawson area.

Dividends Declared

CANADIAN PACIFIC.—common, 75¢, final, payable February 29, 1952, to holders of record December 28; 4% non-cumulative preference, 2%, payable February 1, 1952, to holders of record December 28.

CINCINNATI INTER-TERMINAL. — 4% preferred, $2, semiannual, payable February 1, 1952, to holders of record January 18.

ILLINOIS CENTRAL.—(leased lines), $2, semiannual, payable January 2, 1952, to holders of record December 11.

MASSAWIPPI VALLEY.—$3, semiannual, payable February 1, 1952, to holders of record December 31.

NEW YORK CENTRAL.—50¢, extra, payable January 15, 1952, to holders of record December 26.

NORTHERN PACIFIC—75¢ payable January 25, 1952, to holders of record December 26.

NORWICH & WORCESTER.—8% preferred, $2, quarterly, payable January 2, 1952, to holders of record December 15.

PIEDMONT & NORTHERN. — 75¢, quarterly; extra, $2, both payable December 20 to holders of record December 10.

TENNESSEE, ALABAMA & GEORGIA.—35¢, year-end, payable December 28 to holders of record December 10.

TUNNEL R. R. (St. Louis).—$3, semiannual. payable January 2, 1952, to holders of record December 15.

WHEELING & LAKE ERIE.—common, $1.43¾, quarterly; 4% prior lien quarterly, both payable February 1, 1952, to holders of record January 18.

Security Price Averages

	Dec. 18	Prev. Week	Last Year
Average price of 20 representative railway stocks..	54.15	54.84	54.33
Average price of 20 representative railway bonds..	90.02	90.14	97.23

RAILWAY OFFICERS

EXECUTIVE

Patterson Moves from L.V. to D.M.&I.R.

Charles L. Patterson, vice-president and general manager of the Lehigh Valley at New York, has been appointed vice-president and general manager, and elected a director of the Duluth,

Charles L. Patterson

Missabe & Iron Range at Duluth, Minn., effective January 1. Mr. Patterson was born at Pittsburgh on December 17, 1905, and attended Princeton University (1926). He entered railroad service in 1923 as machinist apprentice with the Pennsylvania and subsequently served as motive power inspector, enginehouse foreman, assistant master mechanic and assistant trainmaster. From 1941 to 1943 he was assistant trainmaster on the Long Island. Mr. Patterson joined the L. V. in 1943 as supervisor terminal operations at Bethlehem, Pa., becoming superintendent of the New York division at Jersey City, N. J., in 1944, general manager at New York in 1947 and vice-president and general manager in 1948. Just prior to announcement of his move to the D. M. & I. R. Mr. Patterson had been elected president of the New York Railroad Club, of which he had formerly been vice-president. He has now resigned from the club presidency.

Harry L. Nancarrow, general manager of the Eastern region of the PENNSYLVANIA, has been appointed assistant vice-president — operation, system, with headquarters as before at Philadelphia. **James L. Cranwell,** assistant general manager of the Central region at Pittsburgh, has been appointed assistant vice-president at New York, succeeding **John A. Schwab,** who has been appointed general manager of the Eastern region at Philadelphia.

Mr. Nancarow was born at Jersey Shore, Pa., on January 13, 1897, and was graduated from Bucknell University (M.E. 1920). He entered railroad service on October 7, 1920, as draftsman with the Pennsylvania and subsequently served in various capacities, including that of master mechanic, superintendent of the Logansport, Buffalo and Pittsburgh divisions, superintendent passenger transportation at Philadelphia and general superintendent of the Lake division at Cleveland. In February 1942 Mr. Nancarrow was appointed general manager of the Western region at Chicago, transferring to the Eastern region at Philadelphia in January 1945.

Mr. Cranwell was born at Shreveport, La., on October 31, 1905, and was graduated from the University of South Carolina (C.E. 1926). He entered railroad service in July 1926 as rodman on the Norfolk division of the Pennsylvania, later serving as assistant supervisor track, supervisor track, assistant division engineer, division engineer and division superintendent. In January 1945 Mr. Cranwell was appointed general superintendent of the Lake division at Cleveland and in November 1949 was transferred to the Western Pennsylvania division at Pittsburgh. He became assistant general manager at Pittsburgh in November 1950.

Harry L. Nancarrow

James L. Cranwell

C. E. Bell, general passenger traffic manager of the Seaboard Air Line, who has been elected a vice-president, with headquarters as before at Norfolk, Va., with general jurisdiction over passenger traffic and public relations matters. Mr. Bell, whose election makes him one of a very few railroad passenger traffic vice-presidents, is a past president of the American Association of Passenger Traffic Officers and of the American Association of Dining Car Officers

FINANCIAL, LEGAL & ACCOUNTING

John R. Crenshaw has been appointed freight claim adjuster of the SOUTHERN at Chattanooga, Tenn.

E. L. Braun, chief clerk of the GREAT NORTHERN, has been appointed

auditor of passenger receipts, succeeding **J. C. Stoffel,** retired.

Emil W. Runge has been appointed general auditor of the MISSOURI PACIFIC, as successor to **C. B. Moore,** who has retired after 48 years of service. **A. A. Griesbauer** succeeds Mr. Runge as auditor disbursements. **C. L. Durban** has been appointed assistant auditor disbursements, succeeding Mr. Griesbauer. **E. R. Lauman** has been named executive assistant to the chief accounting and financial officer, a newly created position, and is succeeded as assistant general auditor by **M. Rittmaster,** while **W. F. Dunkman** has been appointed general accountant, succeeding Mr. Rittmaster. All the new appointees are headquartered in St. Louis.

Mr. Runge started his railroad career with the M.P. as a clerk in the fuel department in 1914. He served in a number of capacities in the accounting department until 1946, when he was promoted to assistant auditor of disbursements. He became auditor of disbursements in 1947 and held that position until his recent appointment.

Mr. Moore began his railroad career with the M.P. in 1903 as clerk in the freight office in St. Louis, and subsequently served as clerk in the car accountant's office and office of superintendent transportation. In 1906 he was appointed accountant in the mechanical department and in 1909 was named chief accountant in the construction department. He became chief clerk to chief engineer in 1912, and served as assistant auditor of disbursements, from May to July 1918, when he was appointed auditor of disbursements. He held this position until 1946, when he was promoted to general auditor.

Mr. Lauman started with the road in 1920. He has been a traveling auditor, tax accountant and assistant general auditor, receiving the latter appointment in 1946.

OPERATING

T. P. King, transportation assistant of the ATLANTIC COAST LINE at Wilmington, N. C., has been appointed trainmaster of the Richmond district at Rocky Mount, N. C., succeeding **M. S. Jones, Jr.,** who has been transferred to the Charleston district at Charleston, S. C.

J. C. Commer, F. W. Trimmer and **E. D. Johnson** have been appointed terminal trainmasters of the NEW YORK CENTRAL at DeWitt yard, Syracuse division.

James J. Swift, assistant general manager of the LEHIGH VALLEY, has been appointed general manager, with headquarters as before at New York, succeeding **Charles L. Patterson,** vice-president and general manager, who has resigned to accept a similar position with another railroad. Mr.

J. Frank Doolan, former executive vice-president of the New York, New Haven & Hartford, has been appointed chief operating officer of the Long Island, as reported in *Railway Age* December 10, page 18. A biography of Mr. Doolan was published in *Railway Age* April 16, page 77

Swift was born at Dunmore, Pa. After a brief connection with the Lackawanna at Scranton, he joined the L.V. in 1917, serving successively as chief clerk to the superintendent of trans-

James J. Swift

portation, assistant trainmaster and trainmaster. He was appointed superintendent of the New York division in 1941, general superintendent in 1944, assistant general manager at Buffalo, N. Y., in 1945, and assistant general manager at New York on January 1, 1950.

William H. Oglesby, superintendent of the SOUTHERN SYSTEM, has been appointed general manager, Central lines, with headquarters as before at Knoxville, Tenn., succeeding **D. W. Brosnan,** who is to become vice-president—operation on January 1 (*Railway Age*, December 3, page 98). **Paul C. Shu,** assistant superintendent at Knoxville, has been appointed superintendent at Greensboro, N. C., succeeding **Albert W. St. Clair,** who has been transferred to Knoxville.

Mr. Oglesby was born in Bedford county, Va., on September 27, 1912, and was graduated from Virginia Military Institute. He entered the employ of the Southern as a rodman at Charlotte, N. C., in September 1936

William H. Oglesby

and later served as assistant supervisor and supervisor. He was appointed assistant trainmaster at Somerset, Ky., in July 1940 and two months later was promoted to trainmaster at Selma, Ala., serving subsequently in that capacity at Oakdale, Tenn., and Birmingham, Ala. Mr. Oglesby was promoted to assistant superintendent at Sheffield, Ala., on March 1, 1944, transferring to Atlanta, Ga., in February 1945. He became superintendent at Selma in June 1945, later transferring to Hattiesburg, Birming-

Paul C. Shu

ham, Somerset, Greensboro and Knoxville, successively.

Mr. Shu was born in North Carolina on February 2, 1916, and was graduated from Virginia Military Institute in June 1940. He joined the Southern on the latter date as a student apprentice at Cincinnati, later serving as assistant track supervisor. In April 1946 he was appointed assistant trainmaster at Birmingham and in February 1947 was promoted to trainmaster at Selma, later transferring to Birmingham and Greensboro, success-

MECHANICAL

G. T. Wilson, whose appointment as engineer of car equipment, New York Central System, to succeed E. P. Moses, retired, was announced in *Railway Age* December 10, page 81

E. P. Moses, whose retirement as engineer of car equipment, New York Central System, was announced in *Railway Age* December 10, page 81. Mr. Moses was honored at a dinner at the Park Lane Hotel, New York, on December 4, attended by 200 associates, railroad men and railway supply men

ively. In July 1950 Mr. Shu was promoted to assistant superintendent at Knoxville.

Raymond R. Gavin has resigned as general manager of the CHICAGO, INDIANAPOLIS & LOUISVILLE (*Railway Age*, August 27), and returned to the Military Railway Service.

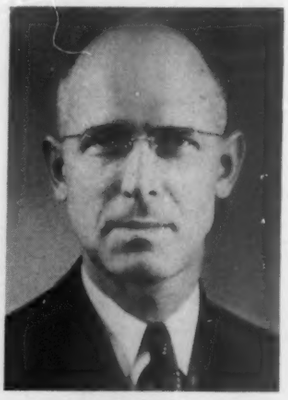
TRAFFIC

R. E. Krieger has been appointed to the newly-created position of assistant to traffic manager of the ATLANTIC & DANVILLE at Norfolk, Va. Mr. Krieger joined the A.&D. about two years ago, shortly after it resumed independent operation. He has had a number of years experience in traffic work, having at various times been in the general traffic department of the Southern at Atlanta and at Cincinnati. He was also at one time with the Georgia & Florida at Augusta, and in the general traffic department of the Atlanta & West Point at Atlanta, and worked for about five years in the traffic department of the St. Louis-San Francisco as special representative at Atlanta.

W. C. Prather, general agent of the ST. LOUIS-SAN FRANCISCO at Salt Lake City has been appointed general agent at Denver, succeeding the late O. H. Reid.

H. J. Pettyplace, general agent of the CHESAPEAKE & OHIO, has been promoted to division freight agent at Saginaw, Mich., succeeding the late **F. J. Byrne.**

E. A. Klippel, passenger traffic manager of the UNION PACIFIC, has been appointed general passenger traffic manager, with headquarters at Omaha. He succeeds the late **C. J. Collins.** Mr. Klippel entered the service of the U.P. as a ticket clerk at La Grande, Ore., in 1917. In 1920 he became traveling passenger agent at Spokane, Wash., and in 1926 was promoted to general agent at Portland, Ore. He was appointed assistant general passenger agent at Salt Lake City in 1932 and two years later was transferred to Omaha with the same title. He was promoted to general passenger agent at Omaha in 1940, to assistant passenger traffic manager in 1945, and to passenger traffic manager in 1949.



E. A. Klippel

Hubert M. Croghan, assistant general freight agent of the CENTRAL OF GEORGIA, has been appointed general freight agent, with headquarters as before at Savannah, Ga. Mr. Croghan joined the C. of G. on April 16, 1924, as messenger in the office of the division freight agent at Savannah, becoming rate clerk in 1931, assistant commerce clerk in 1935, chief commerce clerk in 1941 and commerce agent in 1945. Mr. Croghan was appointed assistant general freight agent on January 1, 1950. He was admitted to the Georgia Bar in December 1936, and to practice before the Interstate Commerce Commission in 1941.

George H. Sinks has been appointed division passenger agent of the BALTIMORE & OHIO at Toledo, Ohio, succeeding **R. C. Mitchell, Jr.,** who has been transferred to Pittsburgh. Mr. Mitchell replaces **R. M. Conlin, Jr.,** whose transfer to Detroit was reported in *Railway Age* November 19.

PURCHASES & STORES

E. M. Powers has been appointed division storekeeper of the CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS (NEW YORK CENTRAL SYSTEM) at Bellefontaine, Ohio, succeeding **P. J. Bivens,** who retired on November 30, after 40 years of service with that company.

ENGINEERING AND SIGNALING

As reported in *Railway Age* December 10, **E. E. Oviatt** has been named consulting engineer of the NEW YORK, NEW HAVEN & HARTFORD at New Haven, Conn. Mr. Oviatt was born at New Britain, Conn., on July 13, 1891, and attended Yale University, Sheffield Scientific School (Ph.B. 1913). He entered railroad service in 1913 as rodman with the New Haven at Waterbury, Conn., and subsequently served as transitman, assistant engineer valuation, assistant engineer, track supervisor, division engineer, maintenance engineer and engineer maintenance of way. Mr. Oviatt served as chief engineer of the New Haven from 1931 until his recent appointment as consulting engineer. He is a past president of the New England Railroad Club.

E. E. Oviatt

New and Improved Products of the Manufacturers

Aluminum Bases For Lamp Bulbs

The General Electric Company's Lamp Division, Cleveland 12, Ohio, is now using aluminum instead of brass for a large portion of its output of bases for incandescent electric light bulbs. Aluminum is being employed to conserve the scarcer brass for military needs.

The aluminum-based lamps are said to be identical in life, efficiency and and cost to the familiar brass-based lamps. The new bases have the advantage of being resistant to tarnishing, and of maintaining a better appearance.

Adaptation of aluminum for lamp bases is considered by the aluminum industry to be one of the most important recent developments in the application of this metal. It is the outgrowth of several years' research and development by metallurgists of General Electric, major aluminum producers and solder manufacturers.

The successful use of this metal for incandescent bulbs required an aluminum alloy which would withstand the high temperatures used by machines on which lamps are assembled. It also required the development of a solder and a flux suitable for a high-speed automatic soldering operation. This operation involves attaching to the shell of the base a wire which leads to the filament. In addition, it was necessary to make exhaustive tests concerning such matters as electrolytic corrosion in brass and copper sockets, corrosion characteristics in various atmospheres, and contact resistance between the base and socket.

Development of the corrosion-resistant aluminum alloy, a special flux and a solder in wire form now for the first time makes the use of aluminum bases practicable.

In addition to maintaining a better appearance than brass bases, the aluminum has such advantages as excellent electrical properties and greater resistance to acids and atmospheres.

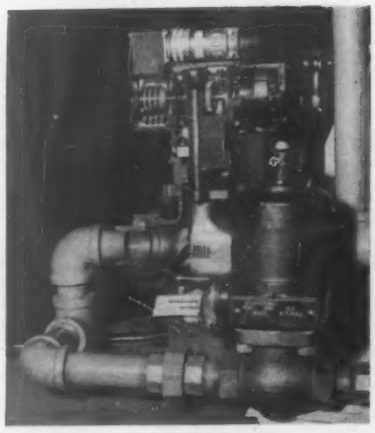
It is expected that aluminum may become the standard metal for most lamp bases whenever the metal supply situation returns to normal.

Modulated Heat For Room Cars

An electronically controlled heating system for railway sleeping cars recently introduced by the Minneapolis-Honeywell Regulator Company, Minneapolis 8, combines overhead and floor heat units to produce comfortable temperautres in the car under all kinds of outside weather conditions.

Electronic thermostats control a single moduflow steam valve for the car's entire heating and cooling system. The steam output from this valve is uniformly divided between the overhead and two floor heat systems. The principal function of the floor heat is continuously to counteract the effect of cold outside walls and windows. Its output is approximately equal to transmitted heat loss of the car. With this large portion of total car heat loss replaced, the overhead air can then be introduced at a temperature very close to the desired car temperature.

For individual car-room temperature control a special booster system was developed. Basically, the booster system varies the discharge air temperature in each room to suit the passenger's individual preference. By adjusting a pneumatic switch, the passenger can regulate the flow of hot water through the booster coil, and thus have direct control of the temperature of the air supplied to his compartment through the ducts. Positioning the pneumatic switch causes the overhead valve serving the booster to be opened or closed. Air pressure to the valve determines the valve opening and the amount of hot water flowing in the coil. Once adjusted, the room temperature remains stable regardless of outside changes.

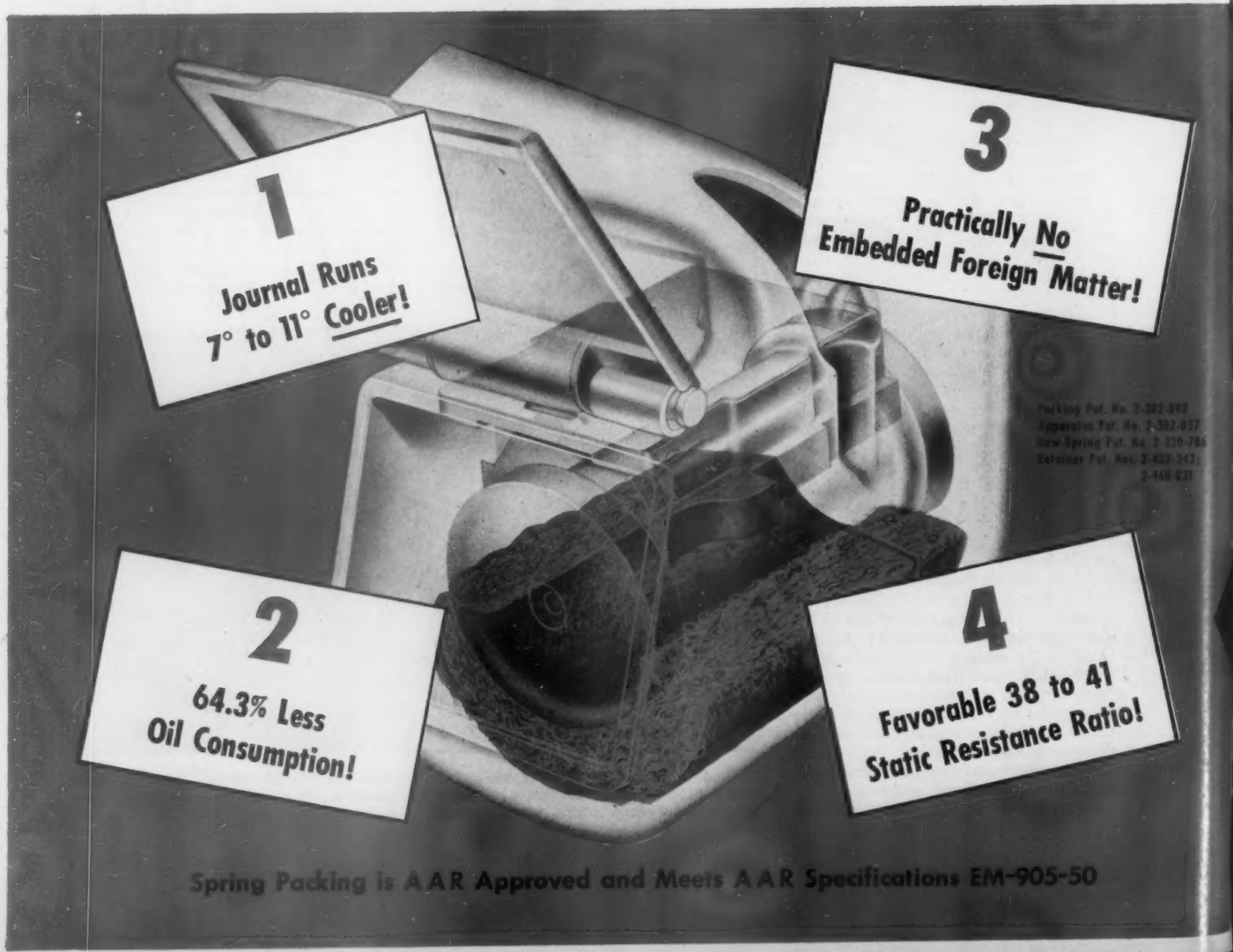


A cutaway moduflow valve and standby valve, basic elements of the electronically controlled heating system for sleeping cars

Finned tubing used for floor heat. The small tube carries a modulated flow of steam, heat from which is transferred over the length of the car to liquid which is circulated through the larger tubing

LABORATORY REPORT REVEALS . . .

Spring Packing provides better lubrication on all 4 important counts


1
Journal Runs 7° to 11° Cooler!
2
64.3% Less Oil Consumption!
3
Practically No Embedded Foreign Matter!
4
Favorable 38 to 41 Static Resistance Ratio!
Spring Packing is A A R Approved and Meets A A R Specifications EM-905-50

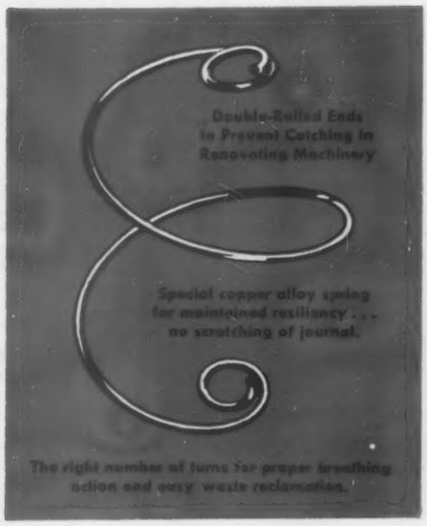
The superiority of Spring Packing for journal box lubrication . . . with all the implications this holds for *your* railroad concerning the elimination of hot box losses and reduction of maintenance costs . . . is now established. In recent tests conducted at the A A R Laboratories in Indianapolis on fully loaded bearings (16,375 lbs. load per bearing), the following facts were developed:

During hot run Spring Packing ran 7° F. cooler at 80 and 100 mile speeds...11° F. cooler at 60 mph speeds...than standard cotton packing!

Only 1¼ oz. of oil were consumed (per box per test) with Spring Packing as compared to 3½ oz. of oil with standard cotton packing.

Considerably less foreign material . . . an important factor in the elimination of hot boxes . . . became embedded in bearing surfaces lubricated with Spring Packing! With all standard cotton packing the bearing had quite a bit of embedded lint.

Static resistance per ton in starting was 38 for Spring Packing as compared to 41 for regular packing!


Double-Rolled Ends to Prevent Catching in Renovating Machinery
Special copper alloy spring for maintained resiliency . . . no scratching of journal.
The right number of turns for proper breathing action and easy waste reclamation

THE REASON WHY

Primary reason for the outstanding record of Spring Packing was the *spring!* Use of 2½ oz. of coil springs per journal box adds enough resistance and "breathing" action to the superior wicking characteristics of the triple de-linted, long thread Spring Packing cotton waste to *assure necessary lubrication at all times of the journal* bearing.

HOW SPRING PACKING SAVES YOU MONEY

By providing *adequate* lubrication under all conditions (A A R tests covered temperatures from —23° F. to +100° F.) Spring Packing eliminates the possibility of hot boxes due to packing lubrication failure. The money saved by preventing only *one* such hot box loss is sufficient not only to cover the slight additional expense of Spring Packing for years to come for your road, but a variety of other expenses as well. For full information about Spring Packing, write *today!*

For 31 Years *the Standard*

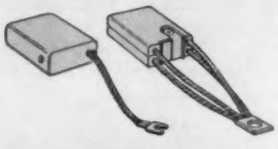
SPRING PACKING CORPORATION

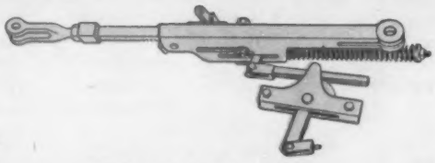
332 SOUTH MICHIGAN AVE.
CHICAGO 4, ILLINOIS

OTHER SPRING PACKING PRODUCTS

Hold-Rite Retainers

Chrome Lock Gasketing


Pittsburgh Carbon Brushes


King Automatic Brake Slack Adjusters

Current Publications

PERIODICAL ARTICLE

"Permanent Variable" Study of Class 1 Railroads, by John E. Hansbury. I.C.C. Practitioners Journal, October 1951, pp. 14-33. Reprints available from Association of Interstate Commerce Commission Practitioners, 2218 I.C.C. bldg., Washington 25, D. C. $1.

Statisticians have long tried to develop a persuasive "per cent variable," or the factor which expresses the per cent of variation in total operating expenses related to the per cent of increase or decrease in traffic volume. There are many almost indeterminable factors that must be measured.

In this study, Mr. Hansbury, who is head valuation engineer of the Bureau of Valuation of the I.C.C., has given dominant consideration to comparability; has leveled the lag in expenses which follows traffic changes into a depression, or boom period; has computed the per cent variable at normal traffic levels, and perhaps, more importantly, has excluded from operating expenses the yearly savings due to "improvement in the art." In brief, the "per cent variable" has been determined excluding the influence of the "improvement in the art" and the yearly "improvement in the art" has been determined excluding the effect of the "per cent variable."

BOOKS

Boxcars in the Sky, by Richard Malkin. 282 pages, illustrations. Import Publications, Inc., 10 Bridge st., New York 4. $4.75.

This is the story of airborne freight and express, both commercial and military. It concerns the manufacturer, the traffic man, the freight forwarder, the shipper, the importer and exporter, the retailer, the wholesaler, the student, the commercial and military aviation man, and the average man. It answers such questions as how can sellers take advantage of airborne produce; what has air freight done to the reading habits of the world; what has attracted steamship operators to air cargo; how were 18 locomotives flown; and will there ever be a flying post office?

Popular Picture and Plan Book of Railroad Cars and Locomotives, edited by Walter A. Lucas. 288 pages, illustrations, drawings. Simmons-Boardman Publishing Corporation, 30 Church st., New York 7. $5.95.

This volume was specially prepared as a handy, moderately priced reference book to be used by railroad hobbyists, model makers, and all other persons interested in railroad cars and locomotives. To provide the hobbyist with actual working plans for his favorite cars and locomotives, a group of car and locomotive photographs and plans have been brought together in this volume. They cover a representative number of types built during the past 20 years, taken directly from the 1947 and 1950 Locomotive Cyclopedias and the 1949 Car Builders' Cyclopedia, and include brief descriptions telling how the various types originated and how they are used today. The material will provide the model maker with sufficient information to build a variety of types.

Steel Serves the Nation—1901-1951: *The Fifty Year Story of United States Steel, by Douglas A. Fisher. 227 pages, illustrations. Published by the United States Steel Corporation. Inquiries for information should be addressed to J. Carlisle MacDonald, assistant to chairman, U.S. Steel Corporation, 71 Broadway, New York 6.*

This year marks the 50th anniversary of the United States Steel Corporation. "It seems fitting . . . to observe our 50th birthday with the publication of a book summarizing United States Steel's outstanding achievements since its birth in 1901 and calling attention to their significance in terms of service to the nation," Irving S. Olds, chairman, says in his preface. "Furthermore," he adds, "the appearance of 'Steel Serves the Nation' may have timeliness and value as the United States prepares to defend itself against the present threat of Communist aggression."

TRADE PUBLICATIONS

Electric Stairways, Buyer's Guide. 32 pages, illustrations. Published by the Westinghouse Electric Corporation, Jersey City, N. J.

A booklet of useful information about the electric stairway and its function in providing convenient and economical vertical transportation. In the opening pages the reader is introduced to the stairway through a cutaway view in which every important part is identified. There follows a discussion of the functions of these parts, which includes information on how they are produced. Other sections of the booklet give data on stairway sizes, prices, applications, arrangements and layouts. The concluding portions tell how the stairways fit into programs of building modernization.

Sling Handbook and Riggers' Manual. 52 pages, illustrations, charts, tables. Union Wire Rope Corporation, Kansas City 3, Mo. Free.

This comprehensive, yet easy to use, sling handbook illustrates 11 sling types and covers their dimensions, weights and safe working loads. Some 30 illustrations of sling uses accompany the factual data as a help in selection of proper types. Also illustrated and detailed are 11 types of sling fittings, valuable information on care of slings, methods of factory fiting and packaging and information on braided wirefabric for those who maintain rigging lofts. Illustrated step-by-step instructions for splicing the new braided wire sling fabric are included. Combined with the sling handbook is a compact riggers' manual. It illustrates and gives step-by-step instruction on wire rope splicing, providing

How to lic

Which method is best for you?

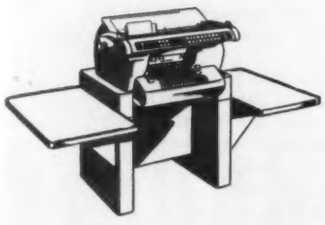
For your types and sizes of payroll?

For the payroll records you need?

For the maximum savings?

For your needs we have no reason to recommend anything but the right machines and systems. We make them all

to lick your payroll problems...



BY ACCOUNTING MACHINE

This is often the most economical method for getting out payrolls with speed and accuracy. It helps reduce those peak loads which disrupt your office routine.

May be used for all types and sizes of payroll, with or without the Synchro-Matic hook-up for punched-card reports.

When payroll does not require full-time use of machine, it may be used for other accounting jobs in between payrolls.

When payroll is very large, the machine may be equipped for continuous forms to give maximum speed.

One line of writing gives four completed and proved records:

1. A payroll register with column totals for all earnings, deductions and payments (plus an extra copy of the register if desired for use as division or department payroll sheet).

2. Pay check (or envelope) with automatic net pay and amount protection.

3. An itemized statement to accompany pay check or envelope for employee's reference on earnings and deductions.

4. A chronological record of the employee's earnings, with to-date totals as desired for gross earnings, taxes withheld, bond deductions, etc.

For a comparatively small investment, you can make tremendous savings of clerical time. No specially skilled personnel is required. Your present staff can quickly learn to operate the Remington Rand, easiest-to-use of all the accounting machines. Just one simple keyboard. Standard alphabet keys. Only ten numeral keys for all figure work.

BY SYNCHRO-MATIC

A. All the advantages of accounting-machine method for payroll in a hurry.
B. Also the advantages of punched-card method for payroll distributions, analyses and reports with speed and economy; especially helpful for centralized records from locally-written payrolls.

One keyboard operates two machines. The accounting machine is synchronized with a tabulating card punch. As payroll records are written on accounting machine, punched cards are produced as automatic by-product on synchronized punch.

Records (1) to (3) are produced on the accounting machine, record (4) optionally from the punched cards, which are also used for fast machine tabulation of:

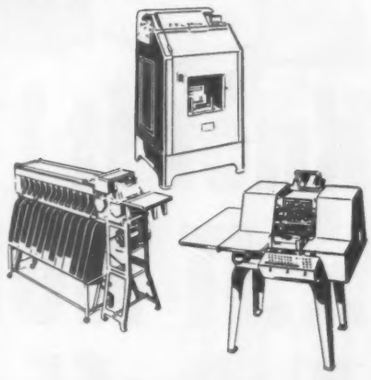
5. All reports on withholding taxes, retirement and other deductions – federal, state and local.

6. All deduction listings and reports for hospitalization, insurance, dues check-off, bond or stock purchases, and employee accounts receivable.

7. Payroll distributions by location, budget account, etc.

8. I.C.C. reports and other personnel analyses by earnings, class and rate, location, seniority, age, sex, or other breakdown.

For a slight extra cost, you get the advantages of *two* machine methods. Practically the same operating simplicity as with accounting machine alone. No attention required from operator for the automatic punching of cards. If you have no tabulating department, Remington Rand can tabulate reports from your cards at low cost, saving you additional investment.



BY PUNCHED CARDS ALONE

This is a very profitable method:

A. To get extensive cost analyses, detailed labor distributions, and basic data for budgeting by ratio of indirect to direct labor costs. (Punched cards are used to rate, extend and summarize gross earnings; each employee's jobs and rates may vary widely within a pay period.)

B. To get out a large salary payroll quickly. (The same punched card can be used over and over for each employee and a new card is required only for changes in salary or status.)

Punched cards are used from the beginning; to calculate all earnings (regular, overtime, incentive, bonus, etc.); to summarize gross earnings for each employee; to produce records (1) to (8); and also to produce following records:

9. Actual (empirical) costs by item to compare with standard or estimated costs.

10. Complete labor cost distribution (direct, indirect and burden).

11. Analysis of efficiency (time utilization) by employee and supervisory group.

12. Reports on machine performance and the causes for low productivity.

13. Reconciliation of the payroll bank account from punched-card paychecks.

The punched-card machines can be rented, purchased outright, or acquired by Remington Rand Use-Purchase Plan which offers an easy way to save on your long-term investment. An efficient tabulating department will multiply the results from human effort by many times, produce results not economical by other means, and repay all costs several times over.

Two folders show how you can mechanize your payroll with clerical savings of 50% or more

Ask your local representative for folders AB-525 and TM-598, or write direct to Management Controls Reference Library, Room 1541, 315 Fourth Ave., N.Y. 10.

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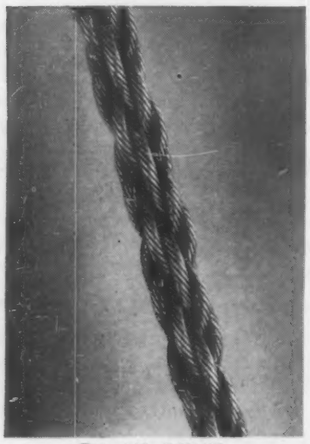
Knot It! Kink It! ...IT WON'T HURT A Tuffy® SLING!



Patent No. 2,454,417

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the rigger with much information about methods of making, serving and seizing regular and rolled-in eye splices, making an endless or long splice, splicing preformed, "lang lay" and "Chicago" splicing of eight-stranded wire rope. Data on efficiencies of wire rope attachments and illustrated directions for attaching sockets or ferrules are also included in the riggers' manual. The back cover shows standard hand signals used in operating overhead traveling cranes and locomotive cranes and whistle signals for cranes and derricks.

Chemical Safe y Data Sheet SD-40, Properties and Essential Information for Safe Handling and Use of Methyl Chloride. 17 pages. Manufacturing Chemists' Association, Inc., 246 Woodward bldg., Washington 5, D. C. 30 cents.

As a chemical reagent or solvent, methyl chloride possesses certain properties which may present hazards in its handling. It is subject to slow decomposition upon contact with moisture. At high temperatures it may break down into compounds which are toxic. And it is flammable. This bulletin sets forth safety rules and precautions to avoid all of these hazards. It also includes I. C. C. regulations which apply to tank cars and cylinders used in transportation of the material. These cover loading, unloading and return of empty containers, as well as correct labeling. Effective employee education is stressed, and complete information on first aid and medical treatment is given for guidance in control of health hazards likely to arise where methyl chloride vapors are present.

PAMPHLETS

Automobile Facts and Figures, 31st Edition, 1951. 80 pages. Automobile Manufacturers Association, New Center bldg., Detroit 2, Mich. Free.

Featured in this edition are highlights of a comprehensive survey conducted early this year of passenger car use in America. In addition, it contains the usual statistical summaries of the motor vehicle industry.

A Year Book of Railroad Information, 1951 edition. 96 pages. Eastern Railroad Presidents Conference, Committee on Public Relations, 143 Liberty st., New York 6. Free.

Contains statistics for 1950 and previous years on the railways' plant, service, rates, earnings, purchases, employees and operations. The figures, with few exceptions, cover Class I railroads.

Wood Preservation Statistics 1951. By Henry B. Steer. 40 pages, tables, maps. Forest Service, U. S. Department of Agriculture, in cooperation with the American Wood Preservers' Association, 839 17th st., N. W., Washington 6, D. C.

A reprint of statistics as to quantity of wood treated and preservatives used in the United States in 1950, as published in the 1951 volume of the American Wood Preservers' Association's annual proceedings. (See *Railway Age*, October 29, page 41.)

1826

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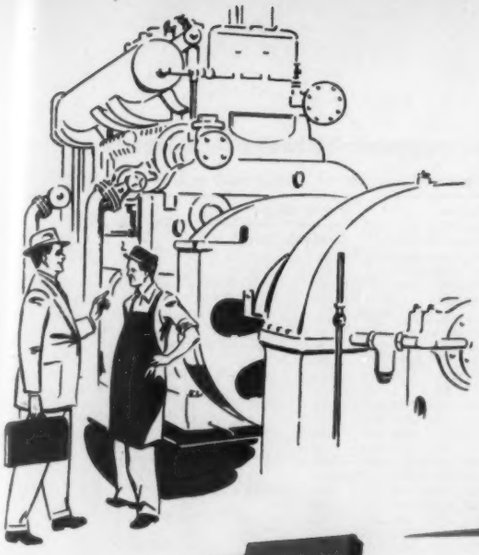

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Freight Operating Statistics of Large Steam Railways — Selected

	Region, Road and Year	Miles of road operated	Train-miles	Locomotive Miles: Principal and helper	Locomotive Miles: Light	Car Miles: Loaded (thousands)	Car Miles: Per cent loaded	Ton-miles (thousands): Gross excl.locos & tenders	Ton-miles (thousands): Net rev. and non-rev.	Road-locos. on lines: Serviceable: Unstored	Road-locos. on lines: Serviceable: Stored	Road-locos. on lines: B.O.	Road-locos. on lines: Per cent B.O.
New Eng. Region	Boston & Maine	1951	1,690	242,745	250,523	13,071	9,537	72.4	588,538	259,974	83	5	14	13.7
		1950	1,700	273,849	283,381	14,622	11,152	71.3	681,484	294,653	89	3	15	14.0
	N. Y., N. H. & Hrtfd.	1951	1,766	272,508	273,107	18,853	10,802	71.0	659,602	290,261	96	..	6	5.9
		1950	1,771	293,765	294,439	21,215	12,017	70.6	733,909	342,930	98	..	12	10.9
Great Lakes Region	Delaware & Hudson	1951	793	237,877	276,181	20,924	10,745	75.4	739,241	412,763	113	18	15	10.3
		1950	793	255,635	305,850	27,812	11,268	72.5	785,003	430,834	145	31	23	11.6
	Del., Lack. & Western	1951	964	266,285	284,813	27,429	12,329	72.0	798,939	374,319	78	11	10	10.1
		1950	966	281,028	304,883	33,470	12,792	72.3	812,175	375,532	86	1	38	30.4
	Erie	1951	2,243	623,160	633,796	37,377	34,867	66.9	2,235,172	910,240	174	26	14	6.5
		1950	2,228	687,821	717,705	54,435	38,193	70.4	2,377,421	1,012,442	206	1	21	9.2
	Grand Trunk Western	1951	952	255,674	262,395	2,348	8,630	65.2	589,057	260,119	56	1	14	19.7
		1950	974	269,969	278,321	2,983	9,512	65.2	643,892	284,053	55	..	10	15.4
	Lehigh Valley	1951	1,211	237,409	248,661	19,381	12,288	72.3	813,672	396,061	44	5	5	9.3
		1950	1,228	247,164	260,838	27,132	12,817	73.5	842,704	415,996	56	2	23	28.4
	New York Central	1951	10,675	2,887,010	3,031,128	159,129	110,482	63.5	7,890,332	3,616,060	891	127	416	29.0
		1950	10,691	3,192,314	3,392,877	191,846	120,766	64.3	8,415,805	3,852,767	1,005	39	365	25.9
	New York, Chic. & St. L.	1951	2,161	755,919	780,249	6,607	30,758	66.7	2,140,844	998,496	202	15	38	14.9
		1950	2,162	784,243	799,648	12,968	31,612	68.2	2,085,453	957,777	204	1	39	16.0
	Pitts. & Lake Erie	1951	221	86,506	88,634	70	3,658	73.2	296,345	185,209	25	3	20	41.7
		1950	221	86,529	88,956	94	3,778	69.3	315,069	195,061	27	..	14	34.1
	Wabash	1951	2,381	507,425	512,634	7,986	21,911	72.0	1,377,674	609,864	122	15	41	23.0
		1950	2,381	548,074	554,046	8,831	23,116	72.5	1,420,181	614,059	143	10	67	30.5
Central Eastern Region	Baltimore & Ohio	1951	6,083	1,716,367	1,999,638	233,067	69,775	64.9	5,274,581	2,664,867	632	74	191	21.3
		1950	6,086	1,923,797	2,324,576	237,398	71,114	64.4	5,331,661	2,672,120	683	39	260	26.5
	Central of New Jersey	1951	412	70,835	71,182	3,673	2,938	67.9	211,751	112,575	42	..	4	8.7
		1950	410	73,485	74,317	5,426	2,986	67.2	222,748	117,552	37	..	5	11.9
	Central of Pennsylvania	1951	210	67,212	74,527	12,686	2,600	71.0	189,740	103,778	32	1	6	15.4
		1950	212	71,634	79,732	14,183	2,883	70.7	210,260	115,266	33	..	18	35.3
	Chicago & Eastern Ill.	1951	886	128,074	128,074	3,646	5,092	70.1	335,863	165,950	27	..	3	10.0
		1950	886	126,549	126,549	2,245	5,376	71.2	338,276	162,423	25	..	..	..
	Elgin, Joliet & Eastern	1951	238	103,654	104,536	958	4,231	66.3	342,726	193,364	43	..	..	..
		1950	238	97,285	103,585	924	3,986	69.0	317,949	182,529	40	..	..	..
	Pennsylvania System	1951	10,045	3,116,660	3,388,436	368,324	137,287	67.5	9,771,130	4,956,351	1,142	101	353	22.1
		1950	10,042	3,250,800	3,575,132	410,445	144,309	68.7	9,989,190	5,019,885	1,254	..	364	22.5
	Reading	1951	1,311	366,402	378,177	25,490	13,370	67.5	1,039,648	571,417	171	31	35	14.8
		1950	1,315	378,302	391,396	27,281	15,180	67.7	1,175,888	653,501	178	15	32	14.2
	Western Maryland	1951	837	175,398	208,895	24,813	6,286	65.3	505,970	284,234	124	8	19	12.6
		1950	837	188,000	225,428	27,909	7,060	65.5	572,437	323,621	139	26	16	8.8
Pocahontas Region	Chesapeake & Ohio	1951	5,043	1,491,234	1,575,336	69,616	69,845	56.7	6,179,422	3,473,207	501	7	242	32.3
		1950	5,042	1,503,949	1,588,433	66,877	65,893	57.6	5,585,097	3,073,740	520	8	172	24.6
	Norfolk & Western	1951	2,113	773,980	828,964	66,033	36,938	59.1	3,315,000	1,825,071	244	12	20	7.2
		1950	2,105	724,157	758,815	46,924	34,594	59.5	2,990,761	1,615,852	237	19	33	11.4
Southern Region	Atlantic Coast Line	1951	5,434	702,426	702,609	11,640	22,674	63.1	1,609,538	761,637	374	28	129	24.3
		1950	5,480	736,557	739,080	12,128	21,869	64.8	1,480,205	682,170	315	13	89	21.3
	Central of Georgia	1951	1,765	224,631	225,550	3,616	7,188	69.8	475,708	227,066	88	6	16	14.5
		1950	1,783	273,234	275,939	4,442	7,587	70.6	493,696	233,485	103	2	7	6.3
	Gulf, Mobile & Ohio	1951	2,851	307,849	307,849	177	16,105	74.8	1,035,762	511,326	80	..	3	3.6
		1950	2,851	319,085	319,085	217	16,127	74.7	1,009,425	478,299	64	..	3	4.5
	Illinois Central	1951	6,539	1,471,092	1,476,628	53,244	52,485	63.8	3,809,908	1,794,932	568	28	65	9.8
		1950	6,543	1,517,797	1,520,904	53,988	55,091	64.9	3,922,444	1,839,411	565	5	87	13.2
	Louisville & Nashville	1951	4,756	1,010,944	1,075,091	28,601	34,579	64.3	2,526,611	1,289,421	284	58	101	22.8
		1950	4,769	1,150,099	1,238,443	35,160	37,989	64.6	2,770,391	1,418,081	336	15	131	27.2
	Nash., Chatt. & St. Louis	1951	1,049	188,845	191,819	3,016	6,181	74.3	389,966	186,983	54	..	6	10.0
		1950	1,049	221,760	224,048	3,634	6,688	77.0	414,334	200,656	90	..	4	4.3
	Seaboard Air Line	1951	4,136	584,755	584,755	910	21,246	66.1	1,475,063	692,437	172	87	64	19.8
		1950	4,136	650,254	667,074	3,446	22,255	66.2	1,501,305	687,202	220	39	14	5.1
	Southern	1951	6,292	1,120,675	1,124,698	13,272	40,491	72.6	2,572,176	1,223,531	378	40	109	20.7
		1950	6,320	1,235,420	1,245,362	14,330	43,551	71.9	2,686,707	1,226,012	371	22	179	31.3
Northwestern Region	Chicago & North Western	1951	7,889	961,236	978,478	24,912	36,922	65.8	2,589,094	1,199,165	334	4	142	29.6
		1950	7,974	988,311	1,002,228	24,757	37,311	65.7	2,597,606	1,100,675	319	4	107	24.9
	Chicago Great Western	1951	1,441	146,011	146,306	9,281	8,413	71.1	561,664	264,779	32	..	2	5.9
		1950	1,441	171,176	171,412	5,168	9,820	71.5	637,188	291,871	34	..	1	2.9
	Chic., Milw., St. P. & Pac.	1951	10,664	1,311,563	1,368,331	44,427	51,228	61.6	3,703,046	1,682,947	421	40	76	14.2
		1950	10,664	1,395,388	1,457,870	53,533	55,776	65.2	3,790,484	1,716,144	453	31	93	16.1
	Chic., St. P., Minn. & Omaha	1951	1,606	215,625	223,224	10,491	6,363	67.6	459,484	219,051	74	..	36	32.7
		1950	1,606	227,993	238,212	12,540	6,745	69.7	465,270	222,076	73	..	24	24.7
	Duluth, Missabe & Iron Range	1951	567	203,996	205,077	1,569	9,450	50.9	979,134	584,314	62	..	5	7.5
		1950	560	187,574	188,844	1,542	9,223	50.3	944,058	569,374	50	..	2	3.8
	Great Northern	1951	8,309	1,261,948	1,265,206	44,256	51,183	61.6	3,987,978	2,008,672	403	82	58	10.7
		1950	8,220	1,228,400	1,229,396	48,175	52,381	64.8	3,930,395	1,988,965	375	44	59	12.3
	Minneap., St. P. & S. Ste. M.	1951	4,173	466,145	478,490	8,149	15,943	62.4	1,166,222	568,087	114	..	13	10.2
		1950	4,179	458,794	470,129	6,339	16,624	65.1	1,155,882	558,043	106	..	16	13.1
	Northern Pacific	1951	6,591	899,752	923,553	49,874	37,577	68.6	2,679,208	1,283,584	332	14	67	16.2
		1950	6,608	930,338	980,417	54,966	39,313	71.9	2,652,760	1,294,302	351	3	57	13.9
Central Western Region	Atch., Top. & S. Fe (incl. G. C. & S. F. and P. & S. F.)	1951	13,096	2,506,976	2,601,017	102,038	106,150	67.4	6,973,986	2,777,516	630	83	126	15.0
		1950	13,073	2,564,793	2,675,918	94,525	107,803	68.3	7,013,122	2,794,007	636	58	168	19.5
	Chic., Burl. & Quincy	1951	8,791	1,248,234	1,274,070	49,073	54,085	67.0	3,624,439	1,649,668	381	18	136	25.4
		1950	8,796	1,327,428	1,357,575	45,725	57,320	65.8	3,880,858	1,744,380	386	21	150	26.9
	Chic., Rock I. & Pac.	1951	7,902	956,499	958,700	17,163	34,395	66.0	2,329,737	1,069,557	216	39	54	17.5
		1950	7,579	994,668	1,023,608	15,310	34,639	67.4	2,321,108	1,056,115	222	37	79	23.4
	Denver & R. G. Wn.	1951	2,334	385,355	423,465	54,156	17,526	73.1	1,146,226	542,793	124	17	21	13.0
		1950	2,400	418,990	462,721	44,638	16,324	71.0	1,048,301	505,815	135	10	27	15.7
	Southern Pacific	1951	8,077	2,186,910	2,301,216	292,384	95,627	65.6	6,579,705	2,719,351	719	9	155	17.6
		1950	8,069	2,161,689	2,311,056	313,835	96,205	69.2	6,340,493	2,659,036	744	6	161	17.7
	Union Pacific	1951	9,756	2,693,977	2,806,775	191,492	114,932	67.4	7,698,772	3,329,336	628	16	133	17.1
		1950	9,720	2,890,845	3,004,607	216,508	120,856	67.2	8,062,010	3,265,705	698	4	92	11.6
	Western Pacific	1951	1,190	256,665	261,113	16,328	13,291	76.1	817,670	383,952	45	14	24	28.9
		1950	1,192	287,685	306,552	24,287	14,132	78.1	878,497	413,802	70	1	15	17.4
Southwestern Region	International-Gt. Northern*	1951	1,104	188,552	188,730	.....	6,735	68.2	470,500	227,769	47	1	13	21.3
		1950	1,089	186,241	186,846	1,056	6,293	66.6	453,305	203,837	54	5	10	14.5
	Kansas City Southern	1951	886	166,806	166,814	243	9,138	68.3	615,971	287,497	25	8	25	43.1
		1950	886	162,057	162,667	1,106	8,910	68.9	591,435	269,356	32	6	20	34.5
	Mo.-Kans.-Texas Lines	1951	3,230	396,366	398,583	6,042	14,995	65.7	977,772	415,396	85	7	21	18.6
		1950	3,231	405,352	409,628	5,391	15,104	66.4	958,766	407,163	86	6	36	28.1
	Missouri Pacific*	1951	6,932	1,276,154	1,299,685	17,617	49,127	67.8	3,302,827	1,496,188	350	3	64	15.3
		1950	6,949	1,332,013	1,356,951	25,041	50,493	69.7	3,270,525	1,465,342	361	..	58	13.8
	Texas & Pacific	1951	1,844	341,890	341,890	7,763	14,100	65.2	959,161	377,194	70	14	42	33.3
		1950	1,844	334,190	334,190	12,381	13,372	68.9	868,503	355,368	84	1	6	6.6
	St. Louis-San Francisco	1951	4,570	654,716	656,638	6,357	22,989	64.7	1,568,606	697,047	177	77	96	27.4
		1950	4,604	673,311	682,301	7,457	23,576	66.7	1,547,632	683,280	204	77	69	19.7
	St. Louis Southw. Lines	1951	1,562	332,793	336,584	4,531	13,904	72.7	844,567	377,533	76	11	19	17.9
		1950	1,562	359,989	362,050	5,027	15,160	72.5	917,060	409,939	72	9	22	21.4
	Texas & New Orleans	1951	4,291	812,538	812,770	18,820	27,985	64.5	1,893,464	805,466	228	..	37	14.0
		1950	4,314	804,644	804,713	20,334	27,556	67.7	1,837,681	816,393	212	..	55	20.6

Items for the Month of September 1951 Compared with September 1950

	Region, Road and Year		Freight cars on line: Home	Foreign	Total	Per Cent B.O.	G.t.m.per train-hr. excl.locos. and tenders	G.t.m.per train-mi. excl.locos. and tenders	Net ton-mi. per train-mile	Net ton-mi. per l'd car-mile	Net ton-mi. per car-day	Car miles per car-day	Net daily ton-mi. per road-mi.	Train-miles per train-hour	Mi. per loco per day
New Eng. Region	Boston & Maine	1951	1,238	8,099	9,337	2.3	38,621	2,427	1,072	27.3	900	45.6	5,128	15.9	95.5
		1950	1,506	9,299	10,805	3.4	38,063	2,493	1,078	26.4	882	46.8	5,778	15.3	101.5
	N. Y., N. H. & Htfd	1951	1,361	13,654	15,015	3.5	35,699	2,424	1,067	26.9	612	32.1	5,479	14.7	109.6
		1950	1,638	16,153	17,791	1.6	35,328	2,501	1,169	28.5	605	30.0	6,455	14.1	108.7
Great Lakes Region	Delaware & Hudson	1951	2,658	6,257	8,915	7.1	57,966	3,122	1,743	38.4	1,549	53.5	17,350	18.7	66.3
		1950	2,077	7,436	9,513	7.3	55,595	3,084	1,693	38.2	1,488	53.6	18,110	18.1	59.6
	Del., Lack. & Western	1951	4,416	11,070	15,486	5.9	47,252	3,054	1,431	30.4	822	37.6	12,943	15.7	117.8
		1950	5,265	11,038	16,303	9.1	44,547	2,957	1,367	29.4	741	34.9	12,958	15.4	99.5
	Erie	1951	5,319	24,258	29,577	3.7	63,312	3,620	1,474	26.1	1,041	59.6	13,527	17.7	113.0
		1950	7,608	24,634	32,242	3.6	58,413	3,482	1,483	26.5	1,053	56.4	15,147	16.9	123.9
	Grand Trunk Western	1951	3,466	10,100	13,566	4.2	48,035	2,322	1,025	30.1	647	32.9	9,108	20.8	137.5
		1950	3,822	10,806	14,628	4.9	46,934	2,405	1,061	29.9	643	33.0	9,721	19.7	155.9
	Lehigh Valley	1951	1,960	13,694	15,654	7.2	65,434	3,470	1,689	32.2	845	36.2	10,902	19.1	171.2
		1950	4,481	12,515	16,996	7.1	65,402	3,481	1,719	32.5	830	34.8	11,292	19.2	129.2
	New York Central	1951	55,006	104,025	159,031	6.9	45,811	2,779	1,274	32.7	734	35.3	11,291	16.8	82.9
		1950	53,067	124,824	177,891	5.7	42,763	2,675	1,225	31.9	717	34.9	12,012	16.2	95.2
	New York, Chic. & St. L.	1951	5,065	21,117	26,182	4.2	49,762	2,874	1,340	32.5	1,334	61.6	15,402	17.6	110.8
		1950	5,060	22,361	27,421	3.9	45,844	2,707	1,243	30.3	1,195	57.8	14,767	17.2	118.9
	Pitts. & Lake Erie	1951	3,099	8,987	12,086	10.1	53,444	3,446	2,153	50.6	467	12.6	27,935	15.6	67.5
		1950	4,308	11,156	15,464	14.6	48,051	3,643	2,255	51.6	413	11.5	29,421	13.2	75.9
	Wabash	1951	7,278	14,463	21,741	6.3	56,220	2,738	1,212	27.8	974	48.6	8,538	20.7	99.0
		1950	6,079	14,232	20,311	3.2	54,515	2,622	1,134	26.6	1,040	54.0	8,597	21.0	89.9
Central Eastern Region	Baltimore & Ohio	1951	43,134	52,930	96,064	5.4	43,095	3,117	1,575	38.2	911	36.7	14,603	14.0	86.3
		1950	36,516	52,574	89,090	8.6	37,290	2,827	1,417	37.6	986	40.8	14,635	13.5	89.8
	Central of New Jersey	1951	338	8,354	8,692	3.1	37,300	3,124	1,661	38.3	408	15.7	9,108	12.5	86.5
		1950	426	9,678	10,104	3.9	36,781	3,147	1,661	39.4	379	14.3	9,557	12.1	101.6
	Central of Pennsylvania	1951	1,349	3,497	4,846	20.5	41,482	3,043	1,665	39.9	715	25.3	16,473	14.7	96.5
		1950	1,048	3,713	4,761	14.7	44,024	3,129	1,715	40.0	796	28.2	18,124	15.0	72.4
	Chicago & Eastern Ill.	1951	1,495	3,132	4,627	9.4	43,004	2,633	1,301	32.6	1,250	54.7	6,243	16.4	158.6
		1950	1,833	3,873	5,706	8.7	43,480	2,679	1,286	30.2	975	45.3	27,111	16.3	184.8
	Elgin, Joliet & Eastern	1951	5,605	16,262	21,867	2.5	20,822	3,389	1,912	45.7	302	10.0	26,082	6.3	124.4
		1950	5,659	12,376	18,035	1.8	23,232	3,440	1,975	45.8	334	10.6	25,564	7.1	119.5
	Pennsylvania System	1951	94,612	119,155	213,767	8.6	48,877	3,238	1,642	36.1	778	31.9	16,447	15.6	85.4
		1950	89,869	126,300	216,169	13.8	45,067	3,182	1,599	34.8	768	32.2	16,663	14.7	89.4
	Reading	1951	10,111	21,312	31,423	4.5	36,881	2,841	1,561	42.7	615	21.3	14,529	13.0	67.6
		1950	10,131	23,363	33,494	6.1	38,703	3,109	1,728	43.1	641	22.0	16,565	12.5	74.8
	Western Maryland	1951	3,450	3,396	6,846	2.9	43,120	2,927	1,644	45.2	1,365	46.2	11,320	14.9	55.5
		1950	4,393	3,504	7,897	2.3	42,057	3,097	1,751	45.8	1,368	45.6	12,888	13.8	56.3
Pocahontas Region	Chesapeake & Ohio	1951	49,520	27,068	76,588	5.4	70,530	4,193	2,357	49.7	1,512	53.6	22,957	17.0	79.2
		1950	44,136	29,547	73,683	5.9	61,152	3,762	2,070	46.6	1,397	52.0	20,321	16.5	86.6
	Norfolk & Western	1951	28,448	8,858	37,306	1.6	71,518	4,360	2,400	49.4	1,635	56.0	28,791	16.7	116.3
		1950	24,925	8,377	33,302	3.1	67,396	4,200	2,269	46.7	1,649	59.3	25,588	16.3	100.5
Southern Region	Atlantic Coast Line	1951	12,058	18,608	30,666	3.3	36,512	2,300	1,088	33.6	859	40.5	4,672	15.9	49.8
		1950	10,295	18,468	28,763	3.6	32,249	2,018	930	31.2	826	40.8	4,149	16.0	66.3
	Central of Georgia	1951	2,068	6,329	8,397	5.3	37,258	2,127	1,015	31.6	942	42.7	4,288	17.6	75.0
		1950	1,695	6,659	8,354	3.2	30,941	1,815	858	30.8	1,037	47.7	4,365	17.1	92.8
	Gulf, Mobile & Ohio	1951	3,091	11,893	14,984	3.3	62,652	3,372	1,665	31.7	1,133	47.7	5,978	18.6	133.5
		1950	3,189	12,071	15,260	2.3	60,006	3,174	1,504	29.7	1,043	47.1	5,592	19.0	172.6
	Illinois Central	1951	21,960	33,525	55,485	2.2	44,293	2,615	1,232	34.2	1,104	50.6	9,150	17.1	83.5
		1950	15,169	31,455	46,624	2.4	45,501	2,611	1,224	33.4	1,305	60.2	9,371	17.6	85.3
	Louisville & Nashville	1951	24,551	16,695	41,246	9.8	39,870	2,507	1,279	37.3	1,042	43.4	9,037	16.0	90.7
		1950	29,521	17,056	46,577	9.1	37,584	2,416	1,237	37.3	1,040	43.1	9,912	15.6	96.3
	Nash., Chatt. & St. Louis	1951	1,069	5,173	6,242	4.2	39,788	2,069	992	30.3	1,010	45.0	5,941	19.3	119.7
		1950	1,285	4,945	6,230	3.0	37,391	1,880	910	30.0	1,038	45.0	6,376	20.0	100.2
	Seaboard Air Line	1951	8,981	15,096	24,077	1.9	44,973	2,550	1,197	32.6	966	44.9	5,581	17.8	69.8
		1950	8,357	15,817	24,174	2.2	40,957	2,355	1,078	30.9	990	48.4	5,538	17.7	92.7
	Southern	1951	12,337	30,148	42,485	4.2	39,275	2,311	1,099	30.2	980	44.7	6,482	17.1	80.1
		1950	11,900	28,185	40,085	3.0	36,535	2,194	1,001	28.2	1,016	50.1	6,466	16.8	77.8
Northwestern Region	Chicago & North Western	1951	18,108	34,913	53,021	4.1	42,359	2,868	1,328	32.5	731	34.2	5,067	15.7	76.2
		1950	17,709	37,676	55,385	3.3	40,962	2,761	1,170	29.5	660	34.1	4,601	15.6	88.9
	Chicago Great Western	1951	1,666	5,740	7,406	2.7	65,053	3,859	1,819	31.5	1,096	49.0	6,125	16.9	164.3
		1950	1,090	6,288	7,378	3.0	63,879	3,747	1,716	29.7	1,307	61.5	6,752	17.2	176.8
	Chic., Milw., St. P. & Pac.	1951	28,282	41,507	69,789	3.1	46,433	2,843	1,292	32.9	810	40.1	5,261	16.4	93.1
		1950	24,137	43,841	67,978	2.4	43,680	2,741	1,241	30.8	860	42.8	5,364	16.1	94.5
	Chic., St. P., Minn. & Omaha	1951	1,086	9,114	10,200	2.4	29,274	2,240	1,068	34.4	683	29.4	4,547	13.7	78.2
		1950	1,228	9,395	10,623	2.3	28,299	2,146	1,024	32.9	687	29.9	4,609	13.9	88.0
	Duluth, Missabe & Iron Range	1951	13,103	2,324	15,427	3.2	84,415	5,029	3,001	61.8	1,240	39.4	34,351	17.6	112.2
		1950	13,176	1,851	15,025	2.6	82,149	5,234	3,157	61.7	1,252	40.3	33,891	16.3	141.9
	Great Northern	1951	21,694	29,173	50,867	3.2	49,416	3,202	1,613	39.2	1,368	56.6	8,058	15.6	90.2
		1950	20,631	25,197	45,828	3.0	49,058	3,236	1,638	38.0	1,538	62.5	8,066	15.3	96.7
	Minneap., St. P. & S. Ste. M.	1951	6,286	12,498	18,784	5.4	45,661	2,528	1,231	35.6	1,037	46.6	4,538	18.3	140.9
		1950	6,365	12,547	18,912	4.0	44,618	2,558	1,235	33.6	1,060	48.5	4,451	17.7	143.1
	Northern Pacific	1951	18,525	21,286	39,811	5.3	49,320	3,012	1,443	34.2	1,071	45.7	6,492	16.6	85.7
		1950	16,539	20,326	36,865	4.8	46,897	2,869	1,400	32.9	1,172	49.5	6,529	16.4	91.5
Central Western Region	Atch., Top. & S. Fe (incl. G. C. & S. F. and P. & S. F.)	1951	42,634	31,835	74,469	4.8	57,615	2,799	1,115	26.2	1,213	68.8	7,070	20.7	113.5
		1950	41,669	32,749	74,418	3.9	55,910	2,753	1,097	25.9	1,227	69.3	7,124	20.4	113.8
	Chic., Burl. & Quincy	1951	17,519	25,529	43,048	2.7	54,492	2,914	1,326	30.5	1,275	62.4	6,255	18.8	89.9
		1950	13,192	30,777	43,969	2.7	53,278	2,933	1,318	30.4	1,334	66.6	6,611	18.2	88.8
	Chic., Rock I. & Pac.	1951	10,057	25,752	35,809	3.3	44,167	2,445	1,123	31.1	1,014	49.4	4,512	18.1	109.5
		1950	10,436	22,322	32,758	2.9	42,770	2,345	1,067	30.5	1,058	51.5	4,645	18.3	108.1
	Denver & R. G. Wn.	1951	6,963	7,799	14,762	4.0	51,034	2,990	1,416	31.0	1,208	53.4	7,752	17.2	103.6
		1950	7,392	8,523	15,915	4.2	41,068	2,514	1,213	31.0	1,058	48.1	7,025	16.4	103.3
	Southern Pacific	1951	24,633	48,749	73,382	3.1	50,855	3,047	1,259	28.4	1,205	64.5	11,223	16.9	104.6
		1950	23,054	41,253	64,307	2.8	47,630	2,976	1,248	27.6	1,329	69.5	10,985	16.2	103.4
	Union Pacific	1951	27,709	37,496	65,205	2.5	63,668	2,903	1,255	29.0	1,685	86.2	11,375	22.3	132.1
		1950	25,125	43,855	68,980	2.3	59,609	2,826	1,145	27.0	1,602	88.3	11,199	21.4	142.1
	Western Pacific	1951	1,761	5,160	6,921	5.0	69,619	3,205	1,505	28.9	2,056	93.5	10,755	21.9	112.3
		1950	1,676	4,945	6,621	7.5	63,070	3,068	1,445	29.3	2,194	96.0	11,572	20.7	122.6
Southwestern Region	International-Gt. Northern*	1951	718	7,147	7,865	2.0	49,762	2,509	1,215	33.8	957	41.5	6,877	19.9	110.2
		1950	726	7,258	7,984	1.5	45,937	2,452	1,103	32.4	819	37.9	6,239	18.9	98.4
	Kansas City Southern	1951	1,082	6,422	7,504	2.8	71,892	3,720	1,736	31.5	1,252	58.3	10,816	19.5	103.1
		1950	1,067	6,483	7,550	2.4	71,043	3,683	1,677	30.2	1,210	58.1	10,134	19.5	105.1
	Mo.-Kans.-Texas Lines	1951	2,812	7,296	10,108	7.7	46,607	2,473	1,051	27.7	1,363	74.9	4,287	18.9	130.1
		1950	2,701	9,381	12,082	2.6	43,984	2,369	1,006	27.0	1,336	74.6	4,201	18.6	114.1
	Missouri Pacific*	1951	14,230	18,443	32,673	2.8	52,373	2,607	1,181	30.5	1,490	72.2	7,195	20.2	112.0
		1950	14,350	21,120	35,470	2.0	49,147	2,471	1,107	29.0	1,369	67.7	7,029	20.0	115.1
	Texas & Pacific	1951	2,144	7,791	9,935	5.8	59,605	2,809	1,105	26.8	1,271	72.9	6,818	21.2	100.7
		1950	2,432	6,693	9,125	5.8	53,377	2,614	1,070	26.6	1,243	67.9	6,424	20.5	133.4
	St. Louis-San Francisco	1951	7,375	14,897	22,272	3.7	42,777	2,403	1,068	30.3	1,030	52.5	5,084	17.9	68.4
		1950	6,029	15,233	21,262	2.9	39,586	2,307	1,018	29.0	1,072	55.5	4,947	17.2	70.7
	St. Louis Southw. Lines	1951	1,670	5,873	7,543	2.1	49,200	2,540	1,136	27.2	1,755	88.9	8,057	19.4	115.7
		1950	1,396	5,619	7,015	1.9	51,497	2,547	1,139	27.0	2,070	105.6	8,748	20.2	127.6
	Texas & New Orleans	1951	3,966	20,432	24,398	2.5	43,264	2,353	1,001	28.8	1,117	60.2	6,257	18.6	109.1
		1950	3,835	19,182	23,017	2.6	42,365	2,303	1,023	29.6	1,193	59.5	6,308	18.6	109.3

*Report of trustee or trustees.
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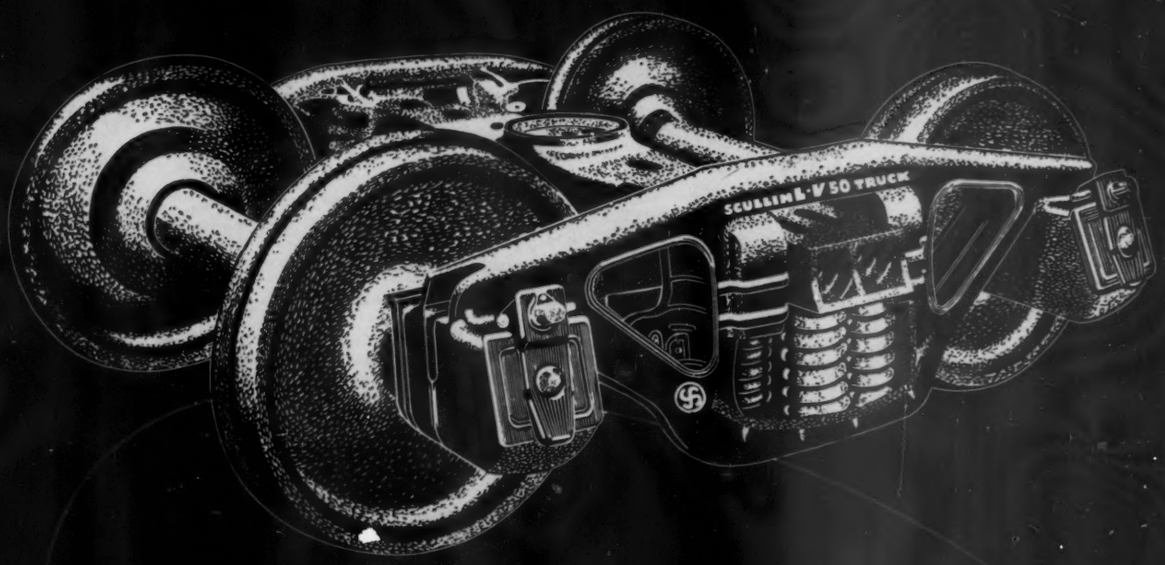

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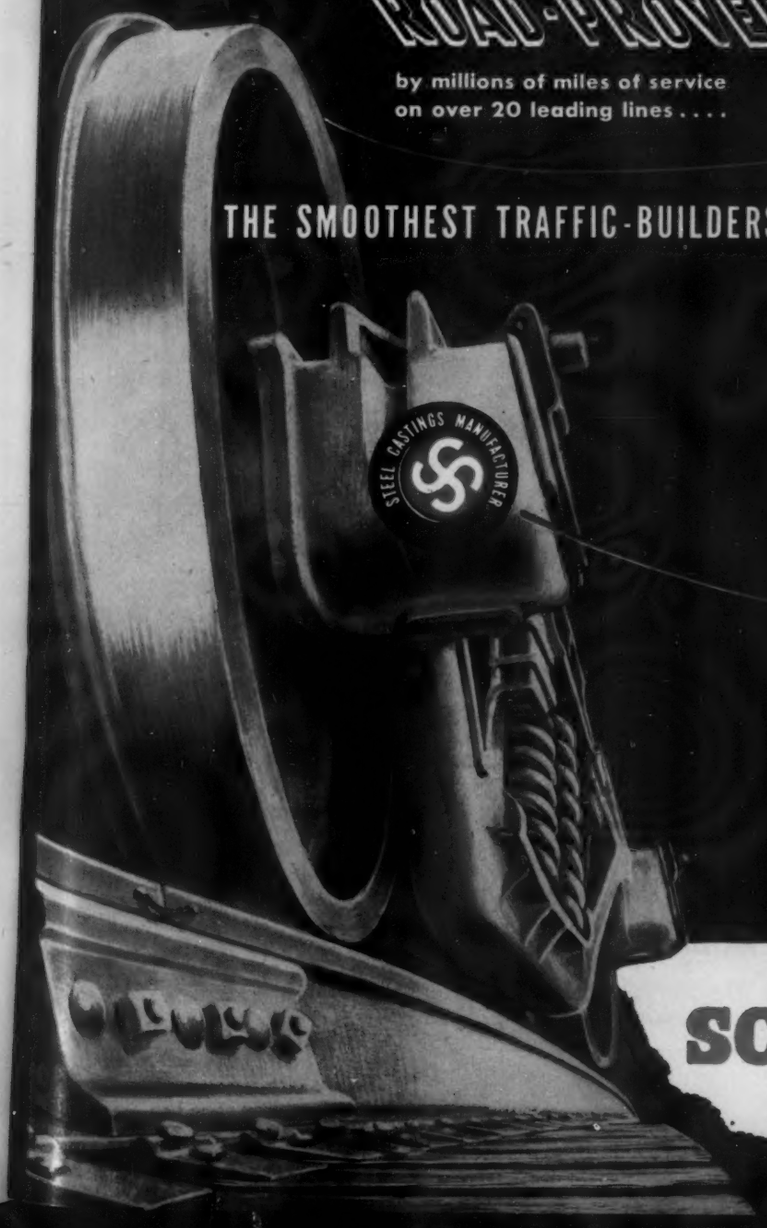

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* Report of Committee on Car Construction, Association of American Railroads (1951).

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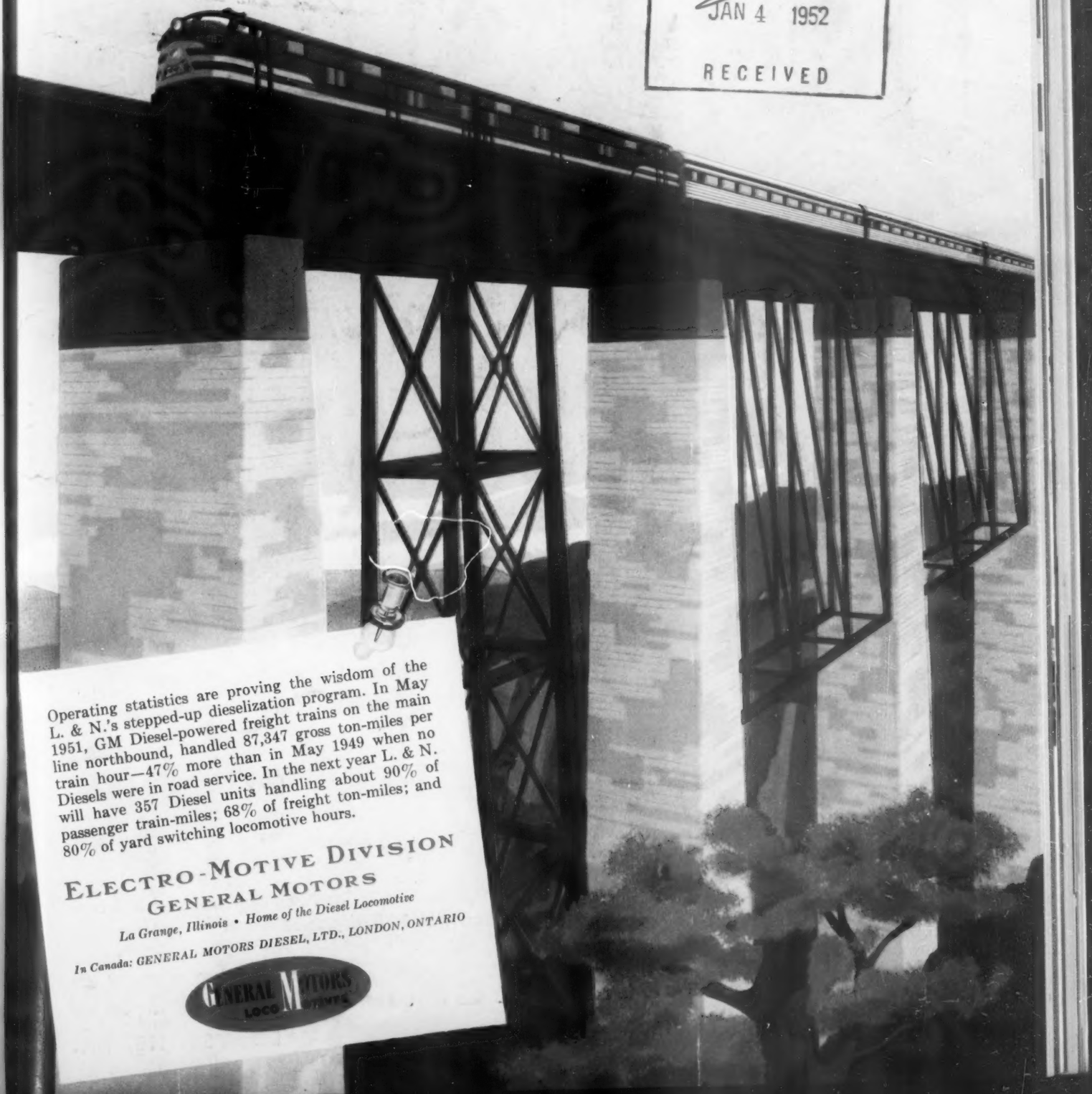

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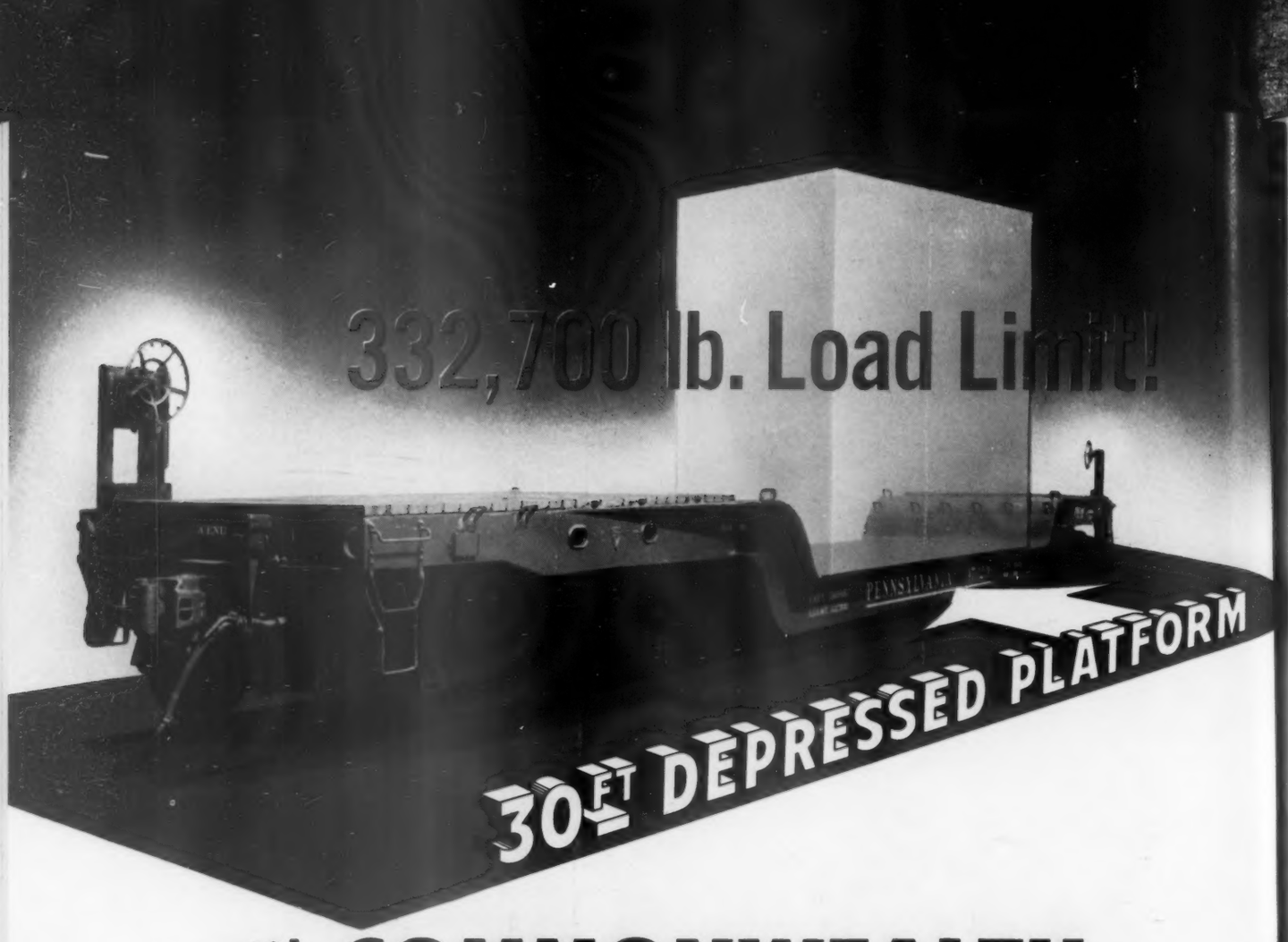

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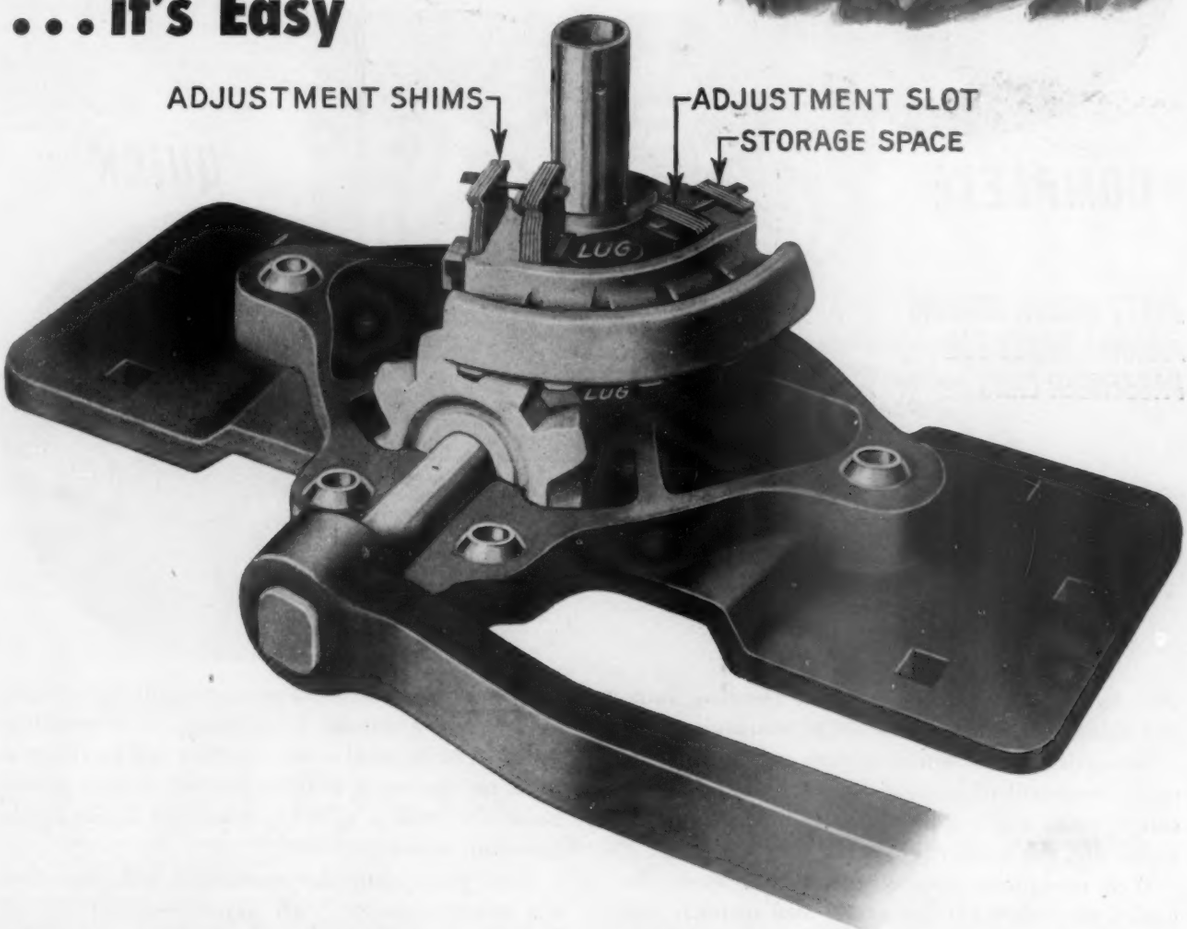

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And, in addition, this switch stand has other great features that make it a top choice for service with heavy rail. Because of its sturdiness and smooth, easy action, we recommend its use in main lines, branch lines, yards—whatever the volume of traffic.

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For additional information, use postcard on pages 67, 68

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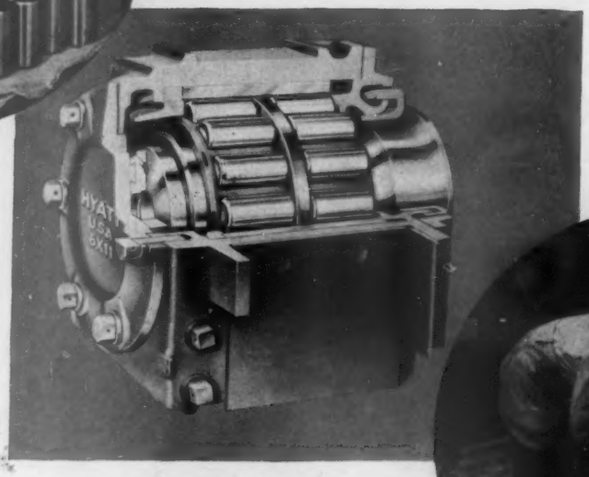

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Vol. 131, No. 27 December 31, 1951

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Published weekly by the Simmons-Boardman Publishing Corporation at Orange, Conn., and entered as second class matter at Orange, Conn., price, $3.00 a year to railroad employees only in U. S., U. S. possessions and Canada, payable in advance and postage free. Subscription price to railroad employees elsewhere in the Western Hemisphere, $10.00 a year; in other countries, $15.00 a year. Two-year subscriptions double the one-year rate. Single copies 50¢, except special issues $1. Address Robert G. Lewis, Assistant to President, 30 Church Street, New York 7.

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Railway Age is a member of Associated Business Publications (A. B. P.) and Audit Bureau of Circulation (A. B. C.) and is indexed by the Industrial Arts Index and by the Engineering Index Service. Printed in U. S. A.

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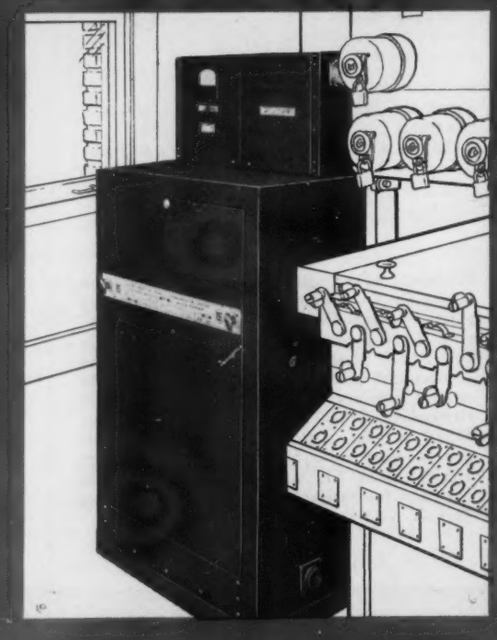

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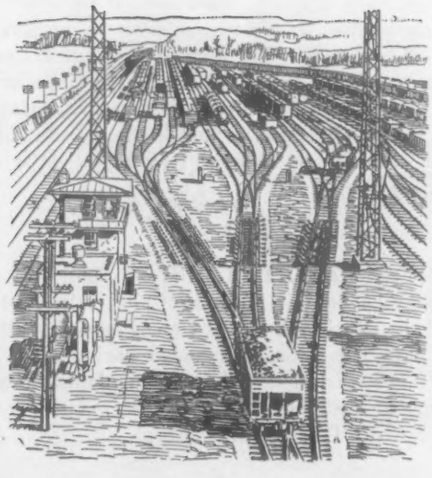
WEEK AT A GLANCE

CURRENT RAILWAY STATISTICS

Operating revenues, ten months	
1951	$ 8,584,113,380
1950	7,683,079,585
Operating expenses, ten months	
1951	6,719,696,853
1950	5,795,212,937
Taxes, ten months	
1951	982,295,028
1950	922,105,384
Net railway operating income, ten months	
1951	712,734,472
1950	815,072,304
Net income, estimated ten months	
1951	476,000,000
1950	577,000,000
Average price railroad stocks	
December 26, 1951	53.33
December 26, 1950	53.34
Car loadings, revenue freight	
50 weeks, 1951	39,323,808
50 weeks, 1950	37,553,045
Average daily freight car surplus	
Week ended December 8, 1951	7,775
Week ended December 9, 1950	7,611
Average daily freight car shortage	
Week ended December 8, 1951	4,316
Week ended December 9, 1950	12,123
Freight cars delivered	
November 1951	9,824
November 1950	5,791
Freight cars on order	
December 1, 1951	129,158
December 1, 1950	126,870
Freight cars held for repairs	
December 1, 1951	88,911
December 1, 1950	97,571
Net ton-miles per serviceable car per day	
September 1951	1,074
September 1950	1,084
Average number railroad employees	
Mid-November 1951	1,258,137
Mid-November 1950	1,289,310



In This Issue . . .

IF ALL FREIGHT CARS had roller bearings—says Oscar Horger, of the Timken Roller Bearing Company—the resulting operating savings would be sufficient to return the investment—calculated at some $793 million—in less than four years. Mr. Horger's conclusions were incorporated in a paper which he presented at the recent A. S. M. E. meeting at Atlantic City, a condensed version of which is published in part in this issue, beginning on page 37. Part II of the paper will appear in Railway Age *of January 7. The portion included in this issue covers the status of roller bearing standardization, and performance of plain and roller bearings.*

"BOOM WAGONS" — i.e., motor trucks loaded with explosives, munitions, and similar dangerous commodities — would become an added hazard on the country's already overcrowded highways if the I.C.C. should see fit to grant permanent rights to handle those commodities to the large group of truckers now seeking such authority. Only proponent — aside, of course, from the truckers themselves — is the Department of Defense, whose alleged desire to save a few pennies on transportation is in odd contrast to the utter extravagance with which it is being currently charged by certain Senators. Opponents include the American Automobile Association, several states and cities, various groups of public officials, railroad labor unions, and railroads. Background of the case, and some of the potential dangers involved, are rounded up on pages 48-51.

NEW PRESIDENTS TAKE OFFICE on two major railroads on the first day of 1952, when D. J. Russell succeeds A. T. Mercier as president of the Southern Pacific, and Harry A. DeButts assumes the office which Ernest E. Norris has held on the Southern. The careers of all four men are outlined in two feature articles, beginning, respectively, on pages 46 and 43.

In Washington . . .

THERE WON'T BE ANY FAST AMORTIZATION of defense facilities in railroad reports to the I.C.C., under the order issued by the commission in the No. 30920 proceeding. The order, which was opposed by a substantial majority of all railroads, although supported by a few, does not affect amortization accounting for tax purposes.

NO SUBSTANTIAL INCREASE in total freight car ownership is likely within the next six months, because of reduced allocations of steel, according to the latest monthly review of the national transportation situation by

WEEK AT A GLANCE

C.S.D. Chairman Arthur S. Gass. Mr. Gass' report indicates that Class I roads have increased their total freight car fleet during the 12 months ended December 1 by more than 40,000 cars; about four-fifths of these are new units.

A LARGER RATE INCREASE has been requested by the Railway Express Agency, which wants the I.C.C. to reconsider its October 23 decision and grant the full increase which the agency originally sought in its Ex Parte 177 petition.

. . . And Elsewhere

MORE STEEL was produced by plants of the United States Steel Corporation in 1951 than in any other like period in the company's half-century history. According to a year-end statement by Board Chairman Irving S. Olds, the corporation had an operating rate for the entire year of 101.5 per cent of rated capacity and in the final weeks averaged close to 105 per cent. Shipments in 1951 approximated 24,250,000 net tons of finished steel products — 7.1 per cent more than in 1950 (the best previous year) and 15.2 per cent over the record wartime shipments of 1944. Barring strikes and other hindering developments, Mr. Olds expects the corporation to produce an even greater amount in 1952.

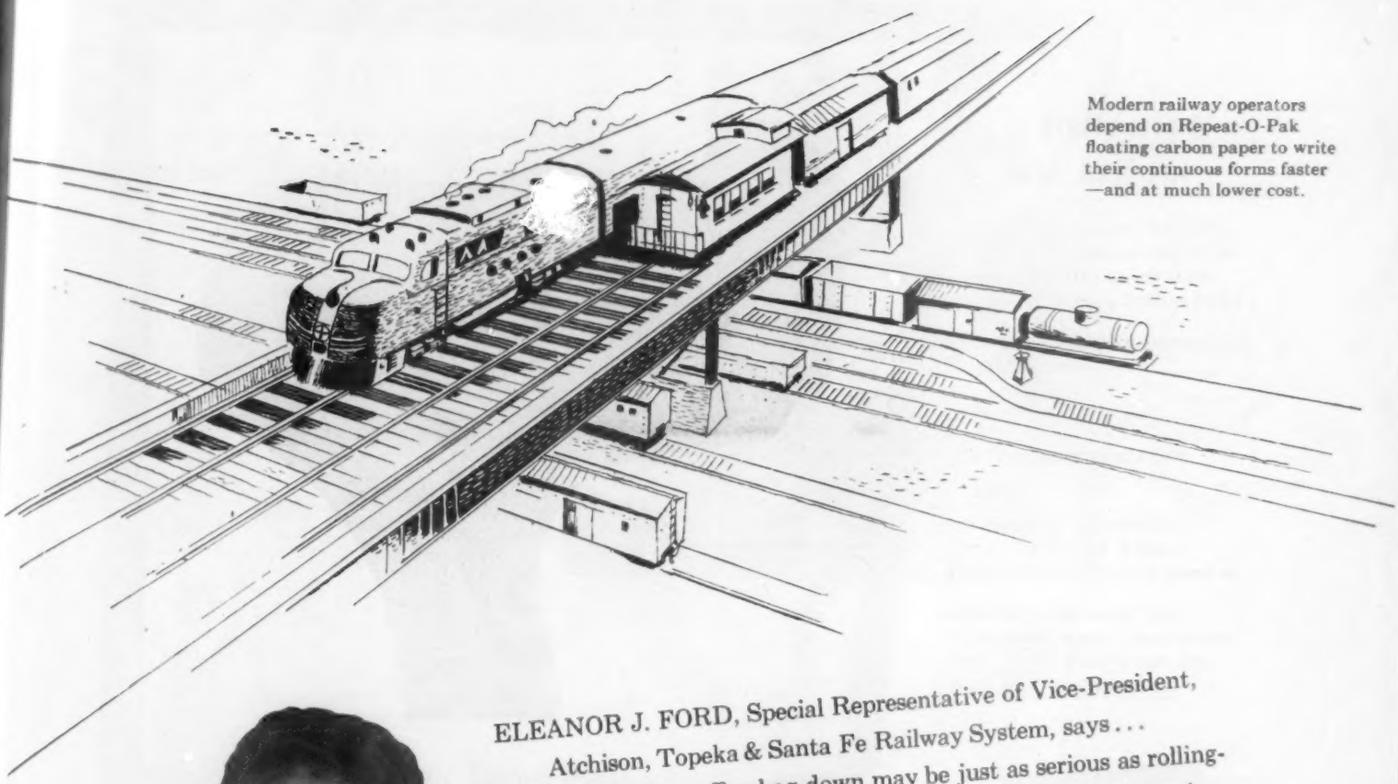
ROAD SWITCHERS FOR SUBURBAN SERVICE have really arrived. The "Dick Tracy" comic serial, Sunday before last, had its setting on a local suburban train, which Artist Chester Gould was sufficiently modern and well-informed to accord approved-profile lightweight cars and a snappy-looking road-switcher. Operating men around big cities will regard with approval the comic strip's dramatization of the Christmas mail rush, though they will hardly have time to solve any murders aboard the bulging head-end cars with which they have to deal.

JOHN L. ROGERS, (above), who has been a member of the Interstate Commerce Commission since 1937, will serve as chairman of that body during 1952. (Railway Age, December 17, page 67.) Commissioner Rogers, who served as chairman of the I.C.C. once before, in 1945, succeeds Commissioner Walter M. W. Splawn in the chairmanship.

A NEW YEAR'S RESOLUTION FOR SHIPPERS, general observance of which would help them and railroads alike, was included in the December report of the Car Efficiency Committee of the Allegheny Regional Shippers Advisory Board. The resolution — and proceedings of other board committees — are reported in the news pages.

THIRTY YEARS AGO railroads made the unfortunate error of underrating the potentialities of truck competition. Lest the same error be repeated with respect to air freight—a recent United Air Lines circular quotes air freight rates per hundred pounds from Los Angeles to Chicago, Cleveland and New York, as only slightly above rail express rates (first class) between the same points. On a volume basis, the air freight rates are actually lower—$11.80 per 100 lb., for example, from Los Angeles to Chicago, against $13.92 by rail express.

TO GIVE CREDIT WHERE CREDIT IS DUE it is only fair to point out that the Third Transportation Military Railway Service—which was recently awarded a Meritorious Unit Commendation (*Railway Age*, November 26, page 10)—was commanded during most of the period for which the commendation was given by William S. Carr, assistant to general manager of the New York, New Haven & Hartford and colonel, retired, in the Army Transportation Corps.



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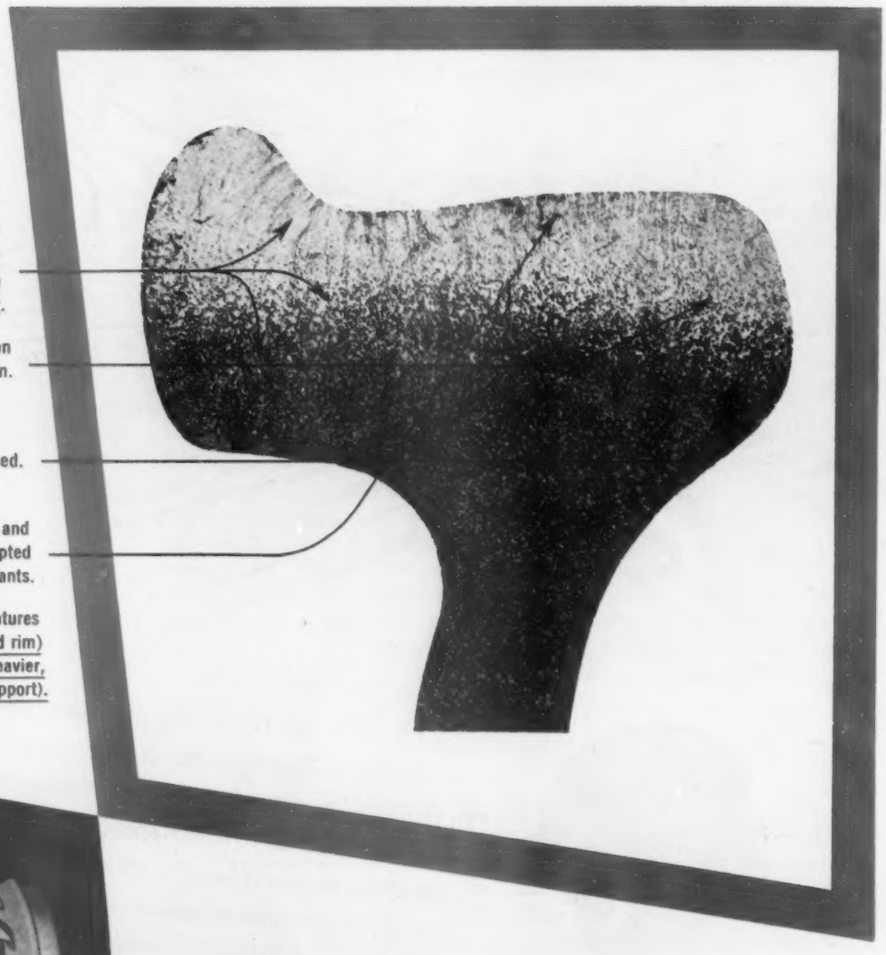
1945 AMCCW plants adopt limitation on chill depth in rim.

1945 Rim thickness increased.

1947 More rigid inspection and standards for rotundity adopted for wheels shipped from AMCCW plants.

1950 New wheel design features heavier tread (stronger flange and rim) and more brackets (thicker, heavier, more continuous flange support).



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Reduced inventory
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Increased ton mileage
High safety standards
Complete AMCCW inspection
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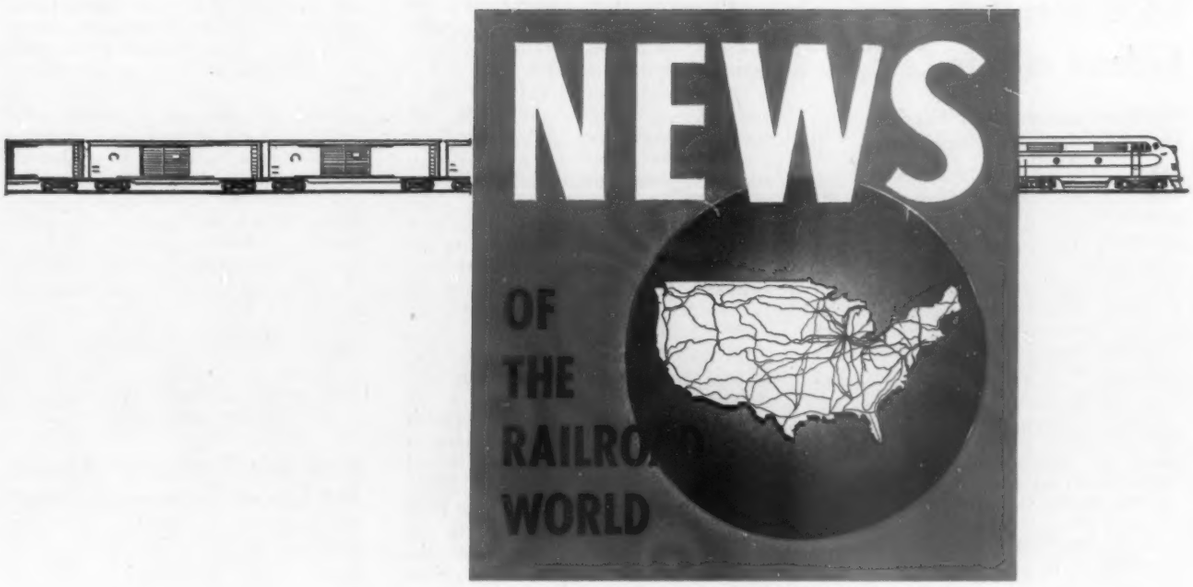


Reduced Steel Allocations Doom Prospects For Further Increases in Car Ownership

Appraising the new-equipment outlook as of December 20, Chairman Arthur H. Gass of the Car Service Division of the Association of American Railroads found that reduced steel allocations had made it "unlikely that any substantial further increase in [freight-car] ownership can be expected during the six months immediately ahead." Mr. Gass' prediction was made in the latest issue of his monthly review — "The National Transportation Situation."

Equipment data included in the report showed that Class I roads increased their ownership by 31,234 freight cars during the 12 months ended with December 1, and that the December 1 total was 1,748,311 cars. Meanwhile, the serviceable fleet increased by more than 40,000 cars, reflecting the gain in ownership and a reduction of 9,000 in the number of cars awaiting repairs.

In the latter connection, Mr. Gass noted that December 1 found the bad order percentage below five per cent "for the first time in eight months."

As for locomotives, the C.S.D. chairman reported that November retirements of steam engines were "heavy," totaling 492. Meanwhile, 289 diesel-electric units were placed in service during the month.

In his discussion of equipment conditions by types of cars, Mr. Gass gave first place to the open-top situation. There he noted that Lake ore shipments terminated December 9, and that the season's movement totaled 89,092,012 tons, 99 per cent of the 90-million-ton goal. The season's all-rail movement of ore "from the Northwest to eastern furnaces" would be "close to 5½ million tons" by the end of the year, Mr. Gass also said.

He went on to present coal-movement figures showing that this year's export tonnage through November totaled 29.4 million tons. The comparable 1950 movement amounted to only 1.7 million tons. "It is understood that export coal shipments overseas in 1952 will be increased over the present level," Mr. Gass added.

(A December 24 press release issued by the Defense Solid Fuels Administration of the Department of the Interior tended to confirm this understanding. "United States coal exports to all areas of the world [including Canada] may reach an all-time record high of close to 80 million tons in 1952," it added.)

The hopper-car situation of recent weeks has been such that "only nominal shortages at the mines" were reported, Mr. Gass said. Shortages of gondolas continue "on a country-wide basis," but the situation is "much improved" as compared with September and October.

The C.S.D. chairman also reported an improved situation with respect to plain flat cars, but "active demand" for special-type flats makes it "essential" that they be given "most expeditious handling." As for covered hoppers, the end of the heavy cement loading season has brought "some surplus cars" of this type.

The box-car situation is "relatively easy," and "serious shortages" of refrigerator cars "have been prevented —so far."

Mr. Gass' discussion of box-car conditions noted that no blocked elevators were reported as of December 14, when only 140,000 bu. of grain were on the ground—all of it "moist grain which must be mixed with dry grain before it can be shipped. On the same date in 1950, "there were 359 blocked elevators and 1,005,000 bu. of grain on the ground."

The October average of net ton-miles per serviceable freight car per day was not available when Mr. Gass' report went to press. However, his discussion of freight car performance included this statement:: "Preliminary indications are that this index . . . will follow the pattern of the two previous months and will rise to about 1100, almost equal to the level of October 1948, and slightly less than October 1950, when car shortages were about twice as severe as they were in October this year."

Reports from 738 cities in various shipper-board districts indicated that cars detained beyond the free time of 48 hours averaged 15.04 per cent of those placed in November. This compared with 13.94 per cent for the previous month and 14.71 per cent in November 1950. For the first 11 mons of this year, average detention was 14.68 per cent, compared with 19.77 per cent for the corresponding period last year.

I. C. C. Gets Railroad Evidence in Rate Case

Verified statements filed in Ex Parte 175 proceeding

Verified statements in support of the railroads' petition for further freight-rate increases which would bring the Ex Parte 175 rise up to the full 15 per cent sought in that case have been filed with the Interstate Commerce Commission. The filings, on December 20, met the commission's schedule for the reopened proceeding which has been assigned for hearing on January 14 at Washington, D. C.

The increases now proposed would raise present freight rates by about 7.2 per cent. The increase previously authorized in Ex Parte 175 averaged only 6.6 per cent. (*Railway Age* of October 29, page 15, and August 20, page 55.)

As summarized in a press release issued jointly by the three regional traffic associations, the verified statements "described how the regional carriers are faced with the dilemma of constantly declining earnings while carrying near-record traffic loads." The basic statement and exhibit in that connection were filed by Dr. Julius H. Parmelee, vice-president of the Association of American Railroads and director of its Bureau of Railway Economics.

Dr. Jules Backman, professor of economics, School of Commerce, New York University, will be another railroad witness, as he has in earlier Ex Parte 175 proceedings and other general rate cases of recent years. Also there is the usual executive, operating and traffic evidence, submitted by railroad officers from all parts of the country.

The presentations joined to form a composite showing to the effect that operating revenues of 1951 will be "the greatest ever recorded," but that operating expenses, combined with taxes, "will also reach record levels." The net result, it was calculated, will be a decrease in net railway operating income from $973 million in 1950 to $903 million in 1951, and a reduction in the rate of return on net investment from 3.96 to 3.54 per cent.

"Neither of these rates of return can be regarded as adequate," the carriers' statement asserted.

It went on to say that, even if current freight rates and charges had been in effect throughout 1951, earnings would still have fallen below those of 1950; and the rate of return would have been only 3.77 per cent. Figures in the verified statements indicated that the net railway operating income of class I roads would amount to $897 million in 1952 if freight rates remain at the present level.

The figures also indicated that, even with the proposed increase, 1952's net railway operating income, at $1,161 million, would be a return of "only 4.42 per cent."

Other data emphasized how continuing rises in wage rates and prices of fuel, materials and supplies have caused railroad costs to outrun railroad revenues. It was shown, for example, that since 1939, the straight-time hourly rate of pay has increased 139 per cent and the price of railway materials and supplies has risen 130 per cent. Meanwhile, the average revenue per ton-mile has increased by only about 45 per cent.

What the railroad witnesses called "inadequate earnings" are coming, their testimony said, at a time when the carriers are making "all-time record expenditures for capital improvements." Reference was also made to the reduction in net working capital, which was down from $1,659 million on December 31, 1945, to $473 million on September 30, 1951, a drop of 71.5 per cent.

That situation, it was suggested, "neither leads to a stronger credit position for the industry, nor does it provide an adequate cushion for a period of reduced traffic volume."

New Air Transport Agency Set Up in Commerce Dep't.

Creation of the "Defense Air Transportation Administration" within the Department of Commerce has been announced by Secretary of Commerce Sawyer. Heading the new agency will be Paul Butler, on leave from his job as president of the Butler Company of Chicago.

D.A.T.A.'s job, according to Secretary Sawyer, is to assure "the adequacy and effective utilization of air transportation equipment, facilities and services to meet the needs of national defense."

The new agency will consist of three divisions — Air Transport, General Aviation, and Airports and Airways. The latter will be under the direction

AT THE INVITATION OF J. C. GARDINER, JR., vice-president of the Bangor & Aroostook, transportation representatives of 19 railroads met recently in Millinocket, Me.—site of the Great Northern Paper Company's largest mill—to discuss and witness demonstrations of the proper handling of newsprint paper, transportation of which is resulting in claims for damage to over $1.5 million worth of paper per year. In addition to touring the mill and watching paper being loaded, the railroad representatives heard Robert M. Hume, superintendent of the Millinocket mill, explain that the mechanical needs of modern high-speed printing presses demand near-perfect rolls of newsprint paper for their successful operation.

Those attending the meeting included O. P. Dowling, A.C.L.; H. E. Bixler, B. & M. and Me.C.; J. F. Steward, S.A.L.; F. J. Tally, N.S.; P. W. Neff, P.R.R.; S. H. Keyes, N.Y.C.; L. S. Vaines, C.P.; C. J. Cooney, I.C.; H. N. Tukey, Me.C.; Forrest Bennett, C.I. & L.; H. A. Moffett, C. & O.; George A. MacLennan, C.N.; C. E. Dore, Wabash; G. W. Duryea, C.N.J.; F. D. Corbett, D. & H.; G. R. Bowman, N.Y.C. & St. L.; W. S. Dorsey, D.L. & W.; W. R. Altice, Southern; and W. B. Hill, Carl R. Smith, R. B. Baldwin, F. D. O'Brien, R. W. Dow, Fred B. Lunt, E. H. Kelley, K. S. Ludden and L. E. Terrio, Bangor & Aroostook.

of Charles F. Horne, Civil Aeronautics Administrator.

Formation of D.A.T.A. brings to three the number of government agencies now directly concerned with air transportation. The other two are the C.A.A., which is also within the Department of Commerce, and the Civil Aeronautics Board, an independent agency.

Relief from Signal Rule Granted to Three Roads

Division 3 of the Interstate Commerce Commission has granted the Wabash, the Southern, and the Cincinnati, New Orleans & Texas Pacific such relief from the commission's signaling rules as will permit the roads to continue using present dragging equipment detector installations at various bridges without such installations being arranged to operate in conjunction with automatic block signal systems. The division's report, by Commissioner Patterson, was in the Ex Parte No. 171 proceeding.

The signal rule from which the relief was granted is No. 136.602. The Wabash bridge involved was its Mississippi River crossing at Hannibal, Mo.; the Southern bridge is that over the James River, near Lynchburg, Va.; and the C.N.O.&T.P. bridge is that over the New River, near New River, Tenn.

Escalator Clauses Call For 4-Cent Pay Increase

Railway employees working under agreements with so-called "escalator" clauses will get another raise of four cents per hour, effective January 1, 1952. The clauses call for quarterly adjustments of one cent per hour for each point of change in the Consumers' Price Index (old series) calculated by the Bureau of Labor Statistics.

The November 15 index of 189.3 governed the adjustment now required for 1952's first quarter. The escalator-clause base is 178, so the new raise will bring the total of such increases to 11 cents per hour. It will add about $120 million to the railroads' annual wage costs, assuming that like arrangements will eventually be made for those operating employees whose wage cases remain unsettled.

Methods, Procedures Officers Discuss Industry

Meeting in the New York offices of *Railway Age* on December 11 and 12, office methods and procedures officers from five railroads agreed, almost unanimously, that a "marriage" of the methods officer's "know how" with departmental officers' intimate knowledge of detailed functioning of departments is bound to produce the best results in setting up new methods and procedures in any given office. It was acknowledged that the chief aim of the methods officer is, and should be, to set up paperwork procedures that will enable the railroad to give better service both to the public and to management.

In discussing their main functions, methods officers said that though cost cutting is certainly one of them, perhaps too much has been made of this and not enough of their other and more important duty of bettering service to management, e. g., reducing a backlog of unpaid freight or overcharge claims, or putting forecasts of revenues and expenses on an actual basis through better and more current reports. The latter, one carrier representative said, was one of the most fertile fields in which the methods man could work. Too many reports made on railroads are not presently set up to give managements maximum controls.

The methods officers made some criticisms of manufacturers of accounting and office equipment because of what was labeled as the failure of the suppliers to work with carriers in developing machines to do the railroads' work, or to find out what the machines they are selling could do for the carriers. One methods officer mentioned, and several others agreed, that while some criticism was due the machine manufacturers, the railroads themselves are also at fault because when manufacturers come to the carriers the latter are not set up to help the manufacturer find out where his product can fit into the railroad paperwork picture. This had happened on his own railroad, he said, due not to lack of desire to be helpful on the part of personnel approached by the manufacturer, but to the fact that the railroad men were tied up with routine duties of their offices and could not give as much time as they would have liked to finding out what the new machines could do for the railroad. Only by having people who could work with the manufacturers, he said, could the railroads hope to get the manufacturers as interested in them as a market for equipment as they should be. And only by getting

Railroads Will Carry on in '52 to Limit Of Their Money and Available Materials

By WILLIAM T. FARICY

President, Association of American Railroads

The nation's railroads in 1951 made all-time record expenditures for new equipment and far-reaching improvements in their plant, which helped bring about further enlargement of carrying capacity and greater operating efficiency.

The railroads also carried a near-record traffic of 643 billion ton-miles, and took in record gross operating revenues of more than $10 billion. Expenses and taxes were also at record levels, however, and increased faster than revenues. Net railway operating income fell from $973 million in 1950 to $903 million in 1951 and the rate of return earned on net investment decreased from 3.96 per cent to only 3.54 per cent.

The telling effect that higher wage rates and prices have had on railroad operating costs is evident from comparison of such increases with the far lesser increase in freight rates. Since 1939, for instance, straight-time hourly rates of pay for railroad workers have inceased 139 per cent, and prices of railroad materials and supplies have increased 130 per cent. During the same period, the revenue received by railroads for hauling an average ton of freight one mile has risen only 45 per cent.

In 1951, the railroads received an average of 1.339 cents for carrying a ton of freight one mile. They also performed passenger transportation equivalent to moving 34,399 million passengers one mile, at an average charge of 2.601 cents for carrying a passenger one mile.

Despite the meager return on invested capital, the Class I railroads spent in 1951 an all-time record amount of more than $1,400,000,000 to enlarge capacity and to increase operating efficiency. Of this huge outlay of capital spending, approximately $1,061,000,000 was allocated for the purchase of about 84,000 new freight cars and about 3,500 new locomotive units. More than $351,000,000 went for improvements to roadway, structures and other fixed facilities.

As a result of these new facilities installed by railroads under the 1951 improvement program, which represents a continuation and acceleration of the long-range program undertaken after World War II, the railroads during the past year so enlarged their carrying capacity and increased their efficiency that the average freight train carried more tons of freight more miles during each hour of operation than ever before.

The railroads enter 1952 with a heavy backlog of more than 120,000 freight cars and more than 1,700 locomotives on order, representing commitments to spend more than one billion dollars. And these capital improvements, along with the many other phases of self-improvement which the railroads have undertaken, will require continued huge expenditures.

On the other hand, the railroads are faced with a serious shortage of the materials and funds required for continued expansion and improvement of facilities.

The Class I railroads, for instance, consider the delivery of 10,000 new freight cars monthly as the minimum required to meet their needs, yet in only one month of 1951 was this number of cars built, and reduced steel allocations in the first quarter of 1952 will doubtless further reduce the number of freight cars installed.

The extent to which the railroad program of improvement and expansion can be financed depends on railroad credit which is based on earnings or the prospect of earnings. This in turn depends on the relationship between railroad rates and operating costs.

What these relationships will be in 1952 and thereafter cannot now be determined. But whatever they may be, the railroads will continue to do everything in their power to meet national transportation needs right up to the limit of available money and materials.

THIS IS THE GROUP OF SOO LINE SALESMEN—traffic representatives from both on-line and off-line offices—who participated in the six-day, 2,500-mile, tour of the system, which was detailed in *Railway Age*, December 3, page 87

manufacturers interested would the railroads be assured that they would get equipment adapted to the job, rather than having the job adapted to equipment, as is too frequently the case now, he concluded.

This meeting was held primarily to discuss the place of the m. & p. department in the railroad picture, the mutual problem of getting methods personnel "accepted"; and difficulties encountered by m. & p. departments in doing their work. A second meeting will be held by the group on March 3 and 4 in Chicago, with the meeting place to be announced later. On the first day of the March meeting, recent methods and procedures changes in disbursement accounting will be discussed, while the second day will be devoted to similar discussion of revenue accounting.

Present at the New York meeting were A. F. Free, assistant to vice-president, accounting, Association of American Railroads; C. A. Strickland, manager, office methods and procedures department, Baltimore & Ohio; V. P. Morgan and John Penny, methods and procedures supervisors, B.&O.; A. H. Kluck, and H. L. Porter, assistants to comptroller, New York Central; W. H. Beebe, director, audits and methods, New York, New Haven & Hartford; George Syat, accountant, N.Y.N.H.&H.; J. L. Pearce, assistant to comptroller, Denver & Rio Grande Western; John Feagler, methods officer, Chesapeake & Ohio; and J. W. Milliken, associate editor, *Railway Age*.

Waybill Studies

Additional waybill studies recently issued by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission included these: Statement No. 5154, State-to-State Distribution of Traffic and Revenue in the Products of Forest Group—Terminations in 1950; Statement No. 5162, Distribution of Petroleum Products by Petroleum Administration Districts—Terminations in Second Quarter of 1951; Statement No. 5147, Average Revenue Progressions by Specified Mileage Blocks for Commodity Groups and Classes, based on a one per cent sample of terminations in 1950; Statement No. 5149, Quarterly Comparisons of Traffic and Revenue by Commodity Classes, based on a one per cent sample of terminations in the first quarter of the years 1947-1951; and Statement No. 5155, State-to-State Distribution of Traffic and Revenue in the Manufactures and Miscellaneous and Forwarder Traffic Groups—Terminations in 1950.

"Fair Competition, Profit Prospects," Asked by Crump

An appeal for less restrictive regulation of agencies in the transportation industry was voiced by N. R. Crump, vice-president of the Canadian Pacific, before the Hamilton, Ont., Traffic Club's annual dinner on December 13.

Mr. Crump acknowledged that he was referring particularly to competition between railways and highway operators, but said the same remarks apply in principle to air and water transport.

"Let highway operators pay their fair share of the cost of building and maintaining highways," he said, "and the railways are willing to compete with them on a basis of price and service, provided the railways are given as much freedom in pricing and in operating their services as is accorded highway operators. . . . If these principles are carried out, funds invested in transportation will be used where they will produce the best transportation at the least cost. Further, the various transportation agencies will grow and develop according to their respective abilities to produce the kinds of transportation shippers want, at the price they are willing to pay."

The whole key to Canada's growth in the past 70 years has been investment, the C.P. vice-president stressed. Prospects of profit must be sufficient to permit the sale—not only of bonds—but, more important, of common stock. Fair and free competition is the only method by which profits can be assured, Mr. Crump stated.

Mahaffie, Alldredge Terms On I.C.C. Expire Dec. 31

Terms of two members of the Interstate Commerce Commission—Charles D. Mahaffie and J. Haden Alldredge—will expire on December 31. In the absence of Presidential action, however, they can continue in office beyond that date.

Such continuance would be pursuant to provisions of the Interstate Commerce Act which stipulate that a commissioner whose term has expired shall remain in office until his successor qualifies. Commissioner Clyde B. Aitchison, whose term expired December 31, 1949, is serving on that basis, but in his case there is also outstanding a Presidential order which exempts him from the law requiring government employees to retire when they reach the age of 70 years. Mr. Aitchison is in his 77th year.

N.Y.C. Cuts Time of Transcontinental Sleeper

The New York Central has reduced the time of its New York-San Francisco alternate day sleeping car service via the "San Francisco Overland" by two hours 45 minutes, by making a later departure from New York City.

Starting December 27 and on alternate days thereafter, the through car leaves New York at 6:15 p.m. in the "Wolverine," New York-Chicago train

operating via Detroit. The Wolverine arrives at La Salle Station in Chicago at 11:15 a.m., and the through car is transferred to the North Western Station in Chicago where it now departs at 3:30 p.m. in the "San Francisco Overland." The car formerly left New York on alternate days at 3:30 p.m. in the "Advance Commodore Vanderbilt."

I.C.C. Launches Probe Of Hell Gate Route Charge

The Interstate Commerce Commission has instituted, upon its own motion, an investigation of the 90-cent bridge arbitrary which is charged for passenger service through New York City over the Hell Gate route. The December 10 order instituting the inquiry (docketed as No. 30953) stipulated that hearings would be held "at such time and place as the commission may hereafter direct."

Respondent railroads are the Pennsylvania, the New York, New Haven & Hartford, and the New York Connecting. The latter is owner of the Hell Gate bridge, and the "toll" charge is the source of its passenger revenue. It was stated at the I.C.C. last week that about $20,978,000 was collected during the period from March, 1920, through August, 1951. The 1950 collections were estimated at $733,000.

The commission's latest determination with respect to the matter was embodied in a 1946 decision which dismissed a complaint assailing the charge. That decision (in Docket No. 29284) held that the levy was not unduly prejudicial, or unjustly discriminatory, or unreasonable. (*Railway Age* of May 4, 1946, page 940.)

Allegheny Board Sees Car Loadings Up 2 Per Cent

At a meeting of the executive and railroad contact committees of the Allegheny Regional Shippers Advisory Board in Pittsburgh on December 13, the board predicted that car loadings in the first quarter of 1952 would be about 2.1 per cent above those during the first quarter of 1951. Shipments of iron and steel, machinery and boilers, electrical goods, food products and fertilizers will contribute heavily to this increase, the board said.

In the report of the l.c.l. committee, it was noted that shippers "appear to be concerned with the long range less carload situation, rather than with present service." Several Youngstown, Ohio, shippers reported efforts to establish some shipper-coordinated consolidation of l.c.l. shipments, at least on shipments moving to major destinations. Carriers reported that since establishments of pick-up and delivery charges more shippers than ever are delivering l.c.l. to freight stations. The question of the importance of rates in the decline of railroad l.c.l. traffic was discussed with no determinate results. However, since it appears that motor carrier line haul class rates in Central and Eastern territories will soon be higher than those of the railroads, there may be some opportunities for testing the importance of the rate factor in "getting" l.c.l. traffic, the committee reported.

The railroad contact committee pointed out that many gondola car days are being lost as a result of damage to cars in loading and unloading. The preponderance of the damage is said to be bent brake shafts and brake wheels, bent and broken hand holds and bent coupler release levers. Shippers and receivers were asked to carry on a campaign within their plants which would help to reduce this damage.

In the report of the car efficiency committee was incorporated the following "New Year's resolution:"

"RESOLVED: 1. That I will, to the best of my ability, unload and load all railway cars promptly, making them available immediately for further loading;

"2. That I will see to it that all cars under my jurisdiction will be turned back to the railroad clean; all blocking, steel strapping, debris or other materials having been removed, thus eliminating serious delays when cars must be placed on clean-out tracks;

"3. That all cars be loaded as heavily as practical so as to use the carrying capacity of cars to the fullest extent which will allow the lading to be carried quickly and safely without damage;

"4. That I will schedule inbound material so that cars will not be received in excess of my ability to unload currently, and that I will ship as scheduled by customers to avoid bunching of cars at destination;

"5. That bills of lading will be furnished promptly to the carrier, so that cars can move on the first available train;

"6. That I will not order cars in excess of my requirements, or ability to load, allowing cars to be distributed fairly and efficiently among all users;

"7. That I will, to the best of my ability, observe all car service rules, to have all cars loaded toward their home road;

"8. That I will caution unloading crews to use all facilities carefully to avoid damage to cars, thus eliminating the necessity of placing cars on the repair track, which would cause car detention."

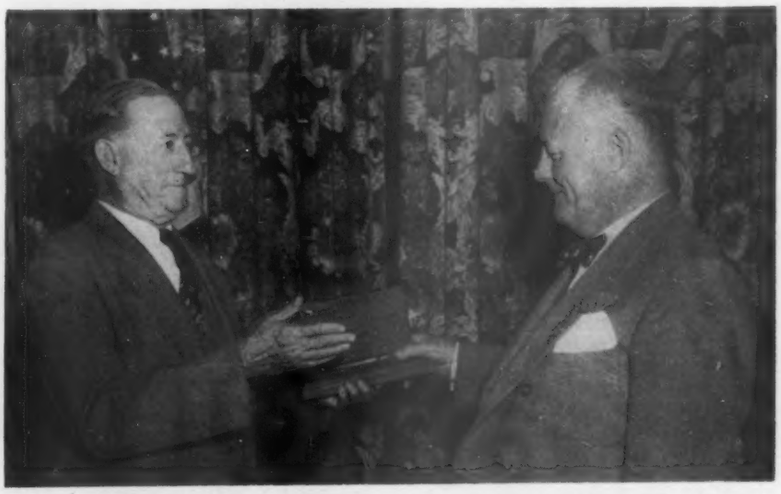
The date of the board's next meeting was set for March 19-20 at the Hotel William Penn in Pittsburgh.

Express Agency Seeks Further Rate Increase

Additional rate increases which would raise its annual revenue by about $20 million are being sought by the Railway Express Agency. The agency has asked the Interstate Commerce Commission to reconsider its latest express-rate decision and grant necessary authority for the proposed rise.

That commission decision was its October 23 determination in Ex Parte 177. (*Railway Age*, November 5, page 12.) It authorized R. E. A. to make general increases in rates and charges, including the raising of first-class rates by 30 cents per shipment for shipments weighing less than 100 lb., and by 30 cents per 100 lb. for shipments weighing more than 100 lb.

This amounted to a trimming of the



A. E. WRIGHT HONORED.—The Car Department Association of St. Louis annually honors some outstanding railroad man for notable accomplishment in the field of freight car design, maintenance or utilization. The recipient this year was A. E. Wright, president and general manager of the Manufacturers Railway, the St. Louis & O'Fallon, and the St. Louis Refrigerator Car Company. The principal address at the November 27 meeting was by Mr. Wright. Following Mr. Wright's remarks, W. P. Elliott, general foreman, Terminal Railroad Association of St. Louis, and a past president of the Car Department Association, presented Mr. Wright with a bronze plaque reading: "Presented to Arthur E. Wright November 27, 1951—In appreciation of his full support and sage counsel. A gentleman, leader and executive admired by all. Our treasured friend. Car Department Association of St. Louis"

I.C.C. GETS PROPOSED REPORTS IN DIVISIONS CASES

Examiners Oren G. Barber and Howard Hosmer have recommended in jointly authored proposed reports that the Interstate Commerce Commmission prescribe new bases for divisions of joint rates on traffic moving between Official and Southern territories, and between Official and Southwestern territories. The proceedings out of which the proposed reports came are Nos. 29885 and 29799 and No. 29886.

Excepting fruits and vegetables and some other traffic, both reports recommend division bases with equal prorating factors, i.e., for Official and Southern lines in one case and Official and Southwestern lines in the other.

The present factors are weighted in favor of the Southern and Southwestern lines, so the effect of the proposed reports' adoption by the commission would be to give a larger share of the joint revenues to Official territory lines.

As to fruits and vegetables, the report in the Official-Southern case proposes higher prorating factors on such traffic originating in the south and terminating at New York. In both reports there are recommendations for establishing special prorating bases where there is an intermediate line which is neither the originating nor terminating road.

Allegations of lack of efficiency in the operations of Official territory lines are found not justified in both reports.

Express Agency's proposal, which had sought increases of 57 cents per shipment and per 100 lb., respectively. Its present petition is for authority to carry out that 57-cent plan, substituting it for the 30-cent increases which the commission authorized. The petition also proposes to increase second-class rates to continue them at 75 per cent of first class.

Its proposal, the petition said, would increase R.E.A.'s annual revenues by $43.9 million, as compared with an annual-basis increase of $23.7 million which the 30-cent adjustment is yielding. The latter, the petition asserted, is "insufficient to reduce materially the shortage in the express revenues of the railroads, and will fail to produce the revenue necessary to enable the petitioners [R.E.A. and the owning railroads] to provide adequate and efficient express transportation."

Roads Ask Investigation Of Illinois Rate Level

Sixty-one railroads serving Illinois have asked the Interstate Commerce Commission to investigate intrastate freight rates in that state. The petition, filed December 18, said present rates are discriminatory against interstate commerce because the state commission failed to authorize Ex Parte No. 175 increases equal to those authorized by the I.C.C. for Eastern territory.

The Illinois commission on November 1 approved an intrastate increase of 6 per cent — the same as the I.C.C. authorized for Western territory. The "175" increase which the I.C.C. approved for Eastern territory was 9 per cent.

Failure of the state to permit this 9 per cent increase constitutes undue preference to shippers and receivers of freight in Illinois, the railroads said. They added that "a most important instance of undue preference" exists in the Chicago Switching District, which includes points in Illinois and points just across the state line in Indiana.

A similar situation arose in 1920, in connection with Ex Parte No. 74, the rail carriers said. They recalled that in that case the I.C.C. required that Illinois intrastate rates be brought up to the general level of rates in the East.

Freight Car Loadings

Freight car loadings for the week ended December 22 were not available when this issue of *Railway Age* went to press.

Loadings of revenue freight for the week ended December 15 totaled 753,194 cars; the summary for that week, as compiled by the Car Service Division of the Association of American Railroads, follows:

REVENUE FREIGHT CAR LOADINGS

For the week ended Saturday, Dec. 15

District	1951	1950	1949
Eastern	126,612	136,465	117,418
Allegheny	154,350	159,553	129,099
Pocahontas	65,813	60,859	44,782
Southern	138,012	136,512	114,144
Northwestern	78,290	81,117	70,254
Central Western	126,745	132,706	106,872
Southwestern	63,372	65,828	57,159
Total Western Districts	268,407	279,751	234,285
Total All Roads	753,194	773,131	639,728
Commodities:			
Grain and grain products	51,350	53,508	44,615
Livestock	9,651	10,514	10,773
Coal	165,317	166,349	126,476
Coke	16,048	15,678	11,579
Forest products	46,696	47,591	37,741
Ore	18,155	14,583	11,305
Merchandise l.c.l.	70,344	79,236	79,611
Miscellaneous	375,633	385,672	317,628
December 15	753,194	773,131	639,728
December 8	773,520	766,895	668,825
December 1	821,776	740,165	693,923
November 24	711,447	701,551	664,555
November 17	814,435	837,458	758,972
Cumulative total 50 weeks	39,323,808	37,553,045	34,792,364

In Canada.—Car loadings for the week ended December 15 totaled 79,844 cars, compared with 84,011 cars for the previous week and 79,562 cars for the corresponding week last year, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
December 15, 1951	79,844	33,590
December 16, 1950	79,562	34,130
Cumulative totals for Canada:		
December 15, 1951	4,047,116	1,724,053
December 16, 1950	3,776,167	1,583,808

Freight Train Runaway Kills Two Employees

A Duluth, South Shore & Atlantic freight train ran out of control down an extensive grade between Nestoria, Mich., and L'Anse finally derailing within a few hundred feet of the L'Anse station, on the night of December 14. Two employees — a brakeman and the fireman on a steam push-locomotive — were killed.

Preliminary reports indicate that the train had ascended to the summit of the grade and that a frozen air line prevented the train from holding its position during uncoupling of the pusher, which was the D.S.S.&A.'s last steam locomotive. All the cars on the train were badly damaged but the diesel locomotive sustained only minor damage.

National of Mexico to Get Passenger Cars from Europe

The National of Mexico reportedly will begin to receive early next year passenger coaches ordered from Europe, chiefly France and Switzerland. The Schindler Wagon A.G. of Switzerland is said to be building 27 dining cars, observation cars and Pullmans for service on de luxe express trains between San Antonio and Mexico City, as well as 30 first-class coaches.

Hendon Named Director Of D.T.A. Tax-Loan Branch

Colonel Robert R. Hendon has been named director of the Tax Amortization and Defense Loans Division, Defense Transport Administration. Col. Hendon has been head of tax and loan activities at D.T.A. for the past year.

Prior to joining D.T.A., Col. Hendon was on active duty with the army for 11 years. He also served 15 years as an attorney for the Interstate Commerce Commission, and was at one time associate counsel for a Senate committee investigating railroad financing.

MORE NEWS ON PAGE 56

Additional general news appears on page 56, followed by regular news departments which begin on the following pages:

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Equipment & Supplies 57
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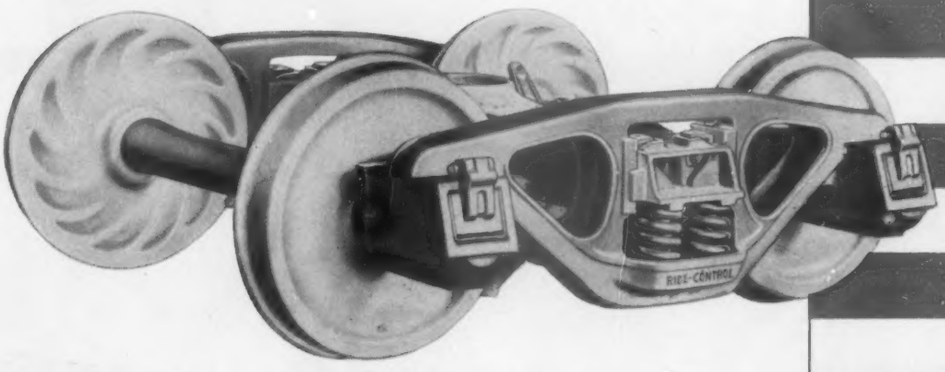
Railway Officers 57



It Started in World War II

Eight years ago, smooth-rolling A.S.F. Ride-Control Trucks began changing the freight-movement picture. Initial applications were on special cars for carrying airplane wings from Detroit to the Coast—first in fast freight trains, then as box-express cars operating in regularly scheduled passenger service at speeds up to 100 m.p.h. And Railroaders soon found Ride-Control *right* for every lading purpose.

By 1946, Ride-Control Trucks were being specified for 50% of all new freight cars ordered for domestic use; and in 1950 nearly 100,000 car-sets were purchased. Today, with 133 different users, Ride-Control has been specified for more than 240,000 cars that will help keep *America* strong.

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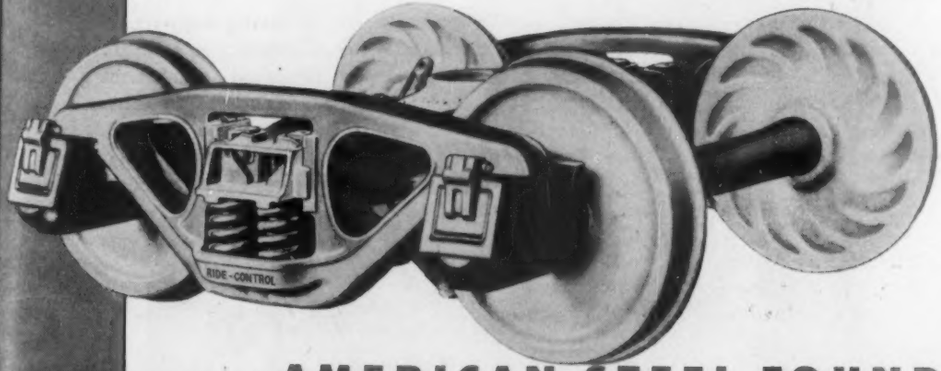

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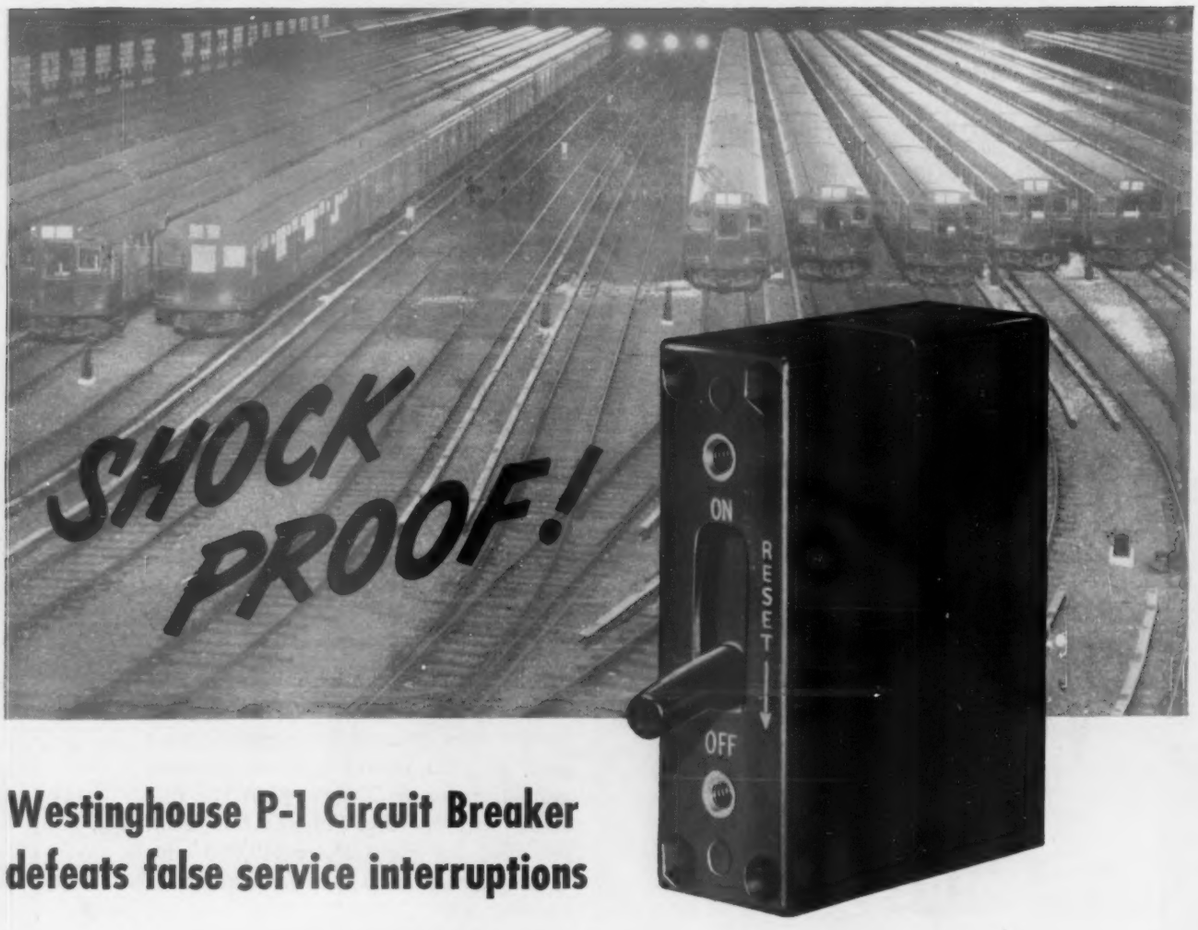
Canadian Sales: International Equipment Co., Ltd., Montreal 1, Quebec

Save with SAFER... SURER AB BREAKERS



Westinghouse P-1 Circuit Breaker defeats false service interruptions

Rough roadbeds are hard taskmasters for ordinary circuit breakers. Excessive vibration and shock can cause false switch tripping... interrupt electrical service needlessly. Westinghouse P-1 Circuit Breakers can take it—they are designed specifically for rough service.

The P-1 breaker is an adaptation of the Navy breaker used on PT boats. Here, P-1 type breakers proved their ability to withstand the roughest kind of operating conditions.

Rugged construction makes the difference. The case is made from heavy-duty Moldarta. Trip release mechanism operates *only* on sustained overloads—physical jarring cannot bother it.

Though sturdily built, the P-1 is small, compact. It combines both switch and protective device in a single unit. A bank of P-1's can be mounted in a panel requiring less space than separate fuse and switch units.

Booklet B-4081 describes all features of the P-1. Ask your Westinghouse representative for your copy, or write to Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-30067

DESIGN TESTED AND VERIFIED IN THE Westinghouse HIGH POWER LABORATORY

YOU CAN BE SURE.. IF IT'S Westinghouse

AB CIRCUIT BREAKERS

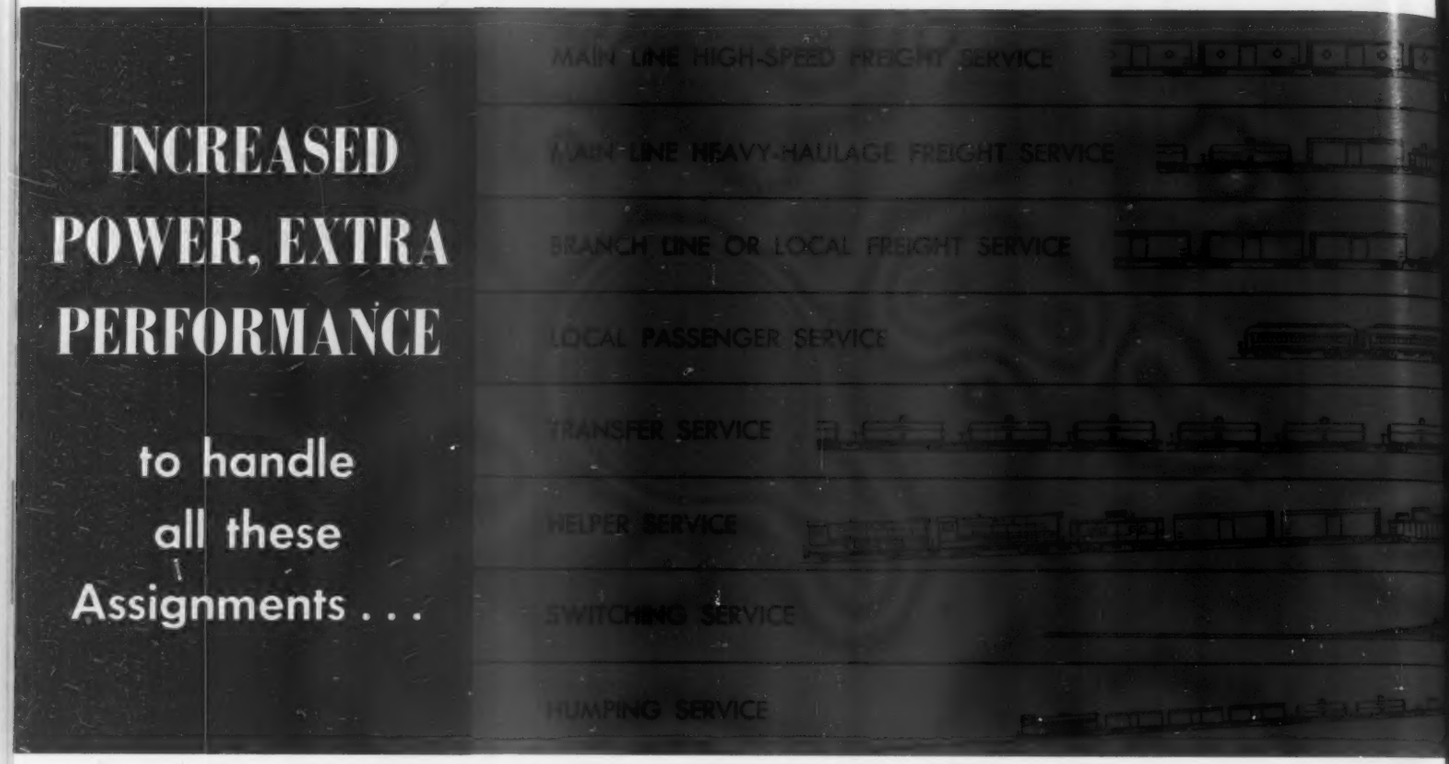
THE COMPLETE LINE

MORE POWER TO YOU

BALDWIN – Westinghouse

DIESEL—ELECTRIC LOCOMOTIVES

Assignments



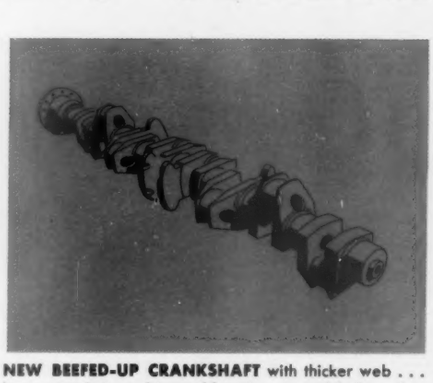
YOU'RE GETTING SOMETHING *MORE*...

THE increased horsepower ratings of the new Baldwin-Westinghouse locomotives have not been merely a matter of changing nameplates. There have been dozens of basic changes in manufacturing methods—in design—in materials. And literally hundreds of refinements that combine to give new, far higher standards of locomotive performance.

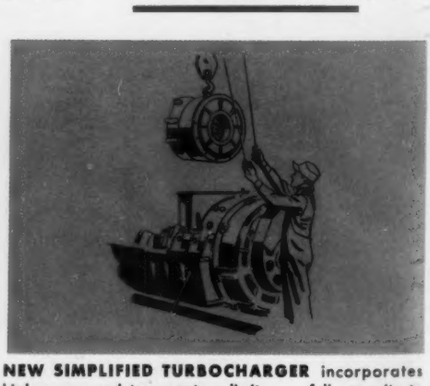
In every one of these eight new locomotives, the improvements in engine design have resulted in increased tractive effort and an ability to handle heavier loads—new improvements in controls have brought smoother, easier operation—new simplifications and grouping of auxiliaries, wiring and piping have made maintenance faster and easier.

For more than half a century Baldwin and Westinghouse have pooled their railroad "know-how" to produce ever more powerful and versatile locomotives. Today, these new units represent one of the most outstanding examples of that collaboration.

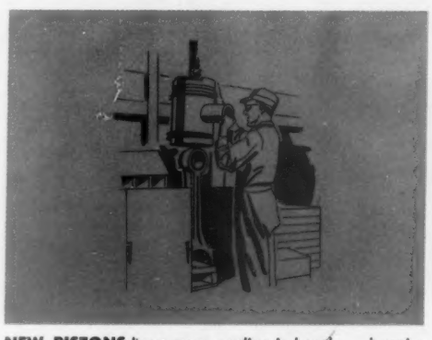
Once you've put these locomotives to work in *your* yards, you'll see why we say . . . "We've been *doing* something *more*, so you're *getting* something *more*."



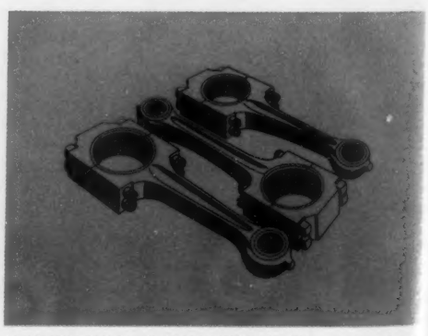
NEW BEEFED-UP CRANKSHAFT with thicker web . . . larger crankpin and journal bearings . . . added overlap between crankpin and journal . . . counterweighted main center bearing.



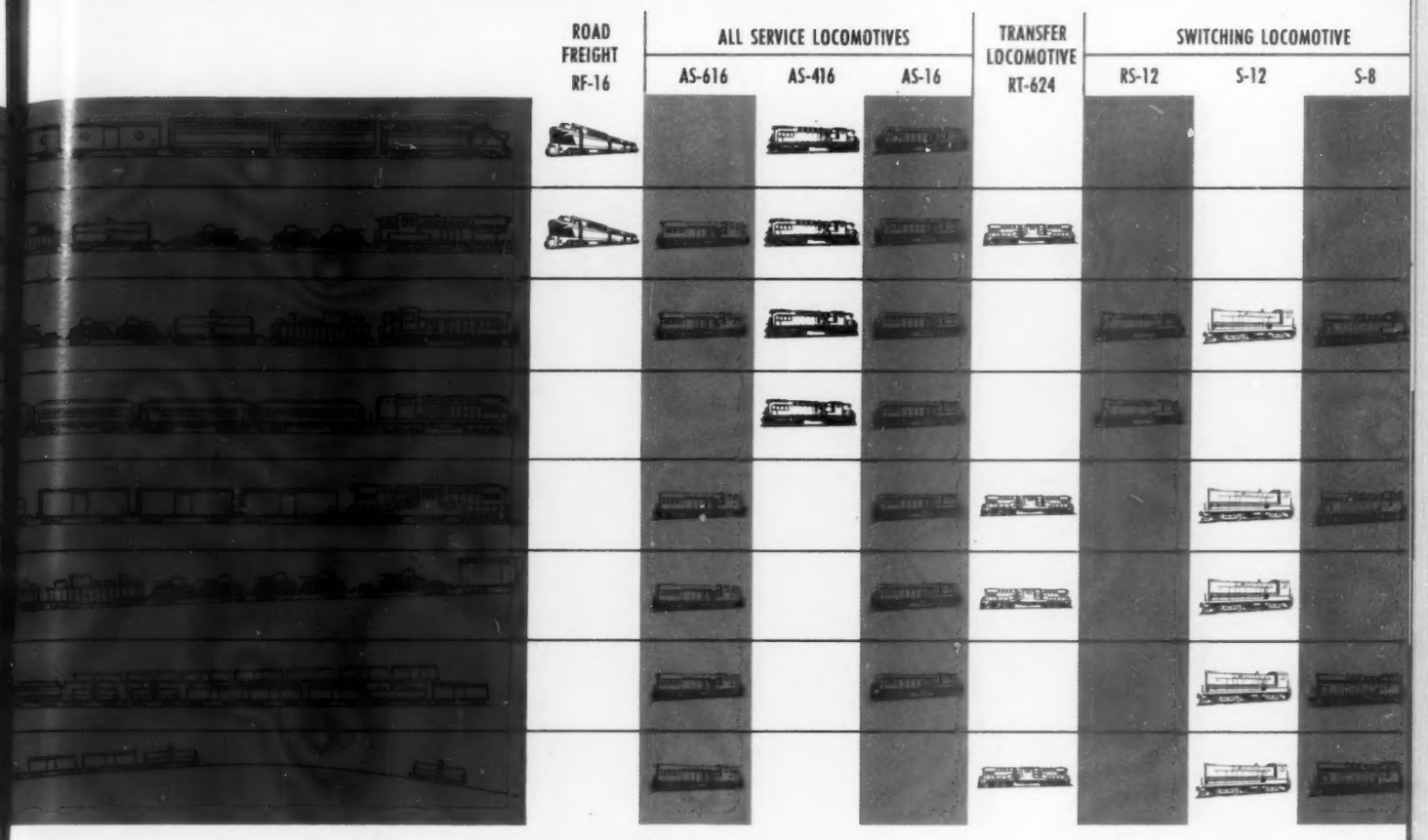
NEW SIMPLIFIED TURBOCHARGER incorporates higher rpm and temperature limits . . . full capacity to 8000 feet . . . forged high-speed rotor . . . shorter turbine blades . . . improved nozzle ring and water cooling.



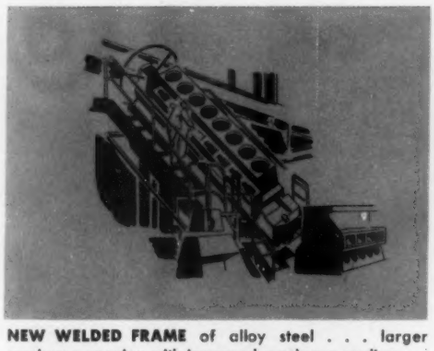
NEW PISTONS have more cooling in head . . . heavier wrist pins.



NEW MATCHED CONNECTING RODS are heavier i cross section . . . matched in sets.

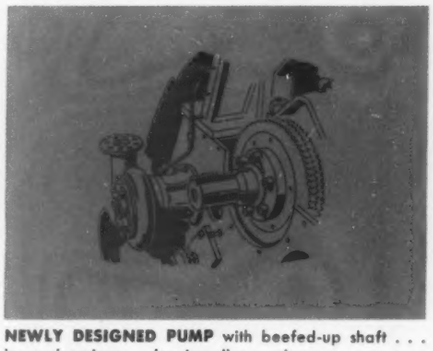


because WE'RE DOING SOMETHING *MORE*

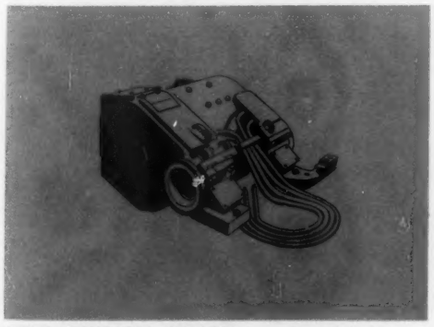


NEW WELDED FRAME of alloy steel . . . larger crankcase opening with improved crankcase sealing . . . re-engineered to strengthen points of stress concentration.

NEW LIGHTER BEARINGS . . . thinner, precision-built with expensive copper-lead facing . . . increased size . . . lower unit bearing loads . . . reduced replacement costs.



NEWLY DESIGNED PUMP with beefed-up shaft . . . larger bearings . . . less impeller overhang . . . new-type mechanical seal.



MORE ELECTRICAL CAPACITY on all models (except for the three standard switching locomotives) to match new engine ratings.

Plus all these other features:

Automatic 4-step field shunting on AS, RT and RF models to give smooth handling and prevent generator or motor overload • Simplified engine mounting prevents any distortion due to thermal expansion and reduces transmission of shocks from underframe to engine • 42-inch wheels on all units except the S-8 and S-12 reduce wheel rail stresses • Ample weight on drivers to fully utilize the new ratings • Large, comfortable cabs are designed to give excellent visibility in all directions.

No-transition, air throttle control on all models, gives smoothest possible control • New load regulator assures maximum use of engine horsepower at all times and reduces maintenance • Black lighting for cab instrument panels improves safety and visibility • Auxiliaries have been simplified wherever possible to reduce electrical maintenance • Fuses have been replaced with circuit breakers.

BALDWIN-Westinghouse Diesel-Electric Locomotives

ENGINEERED AND BUIL

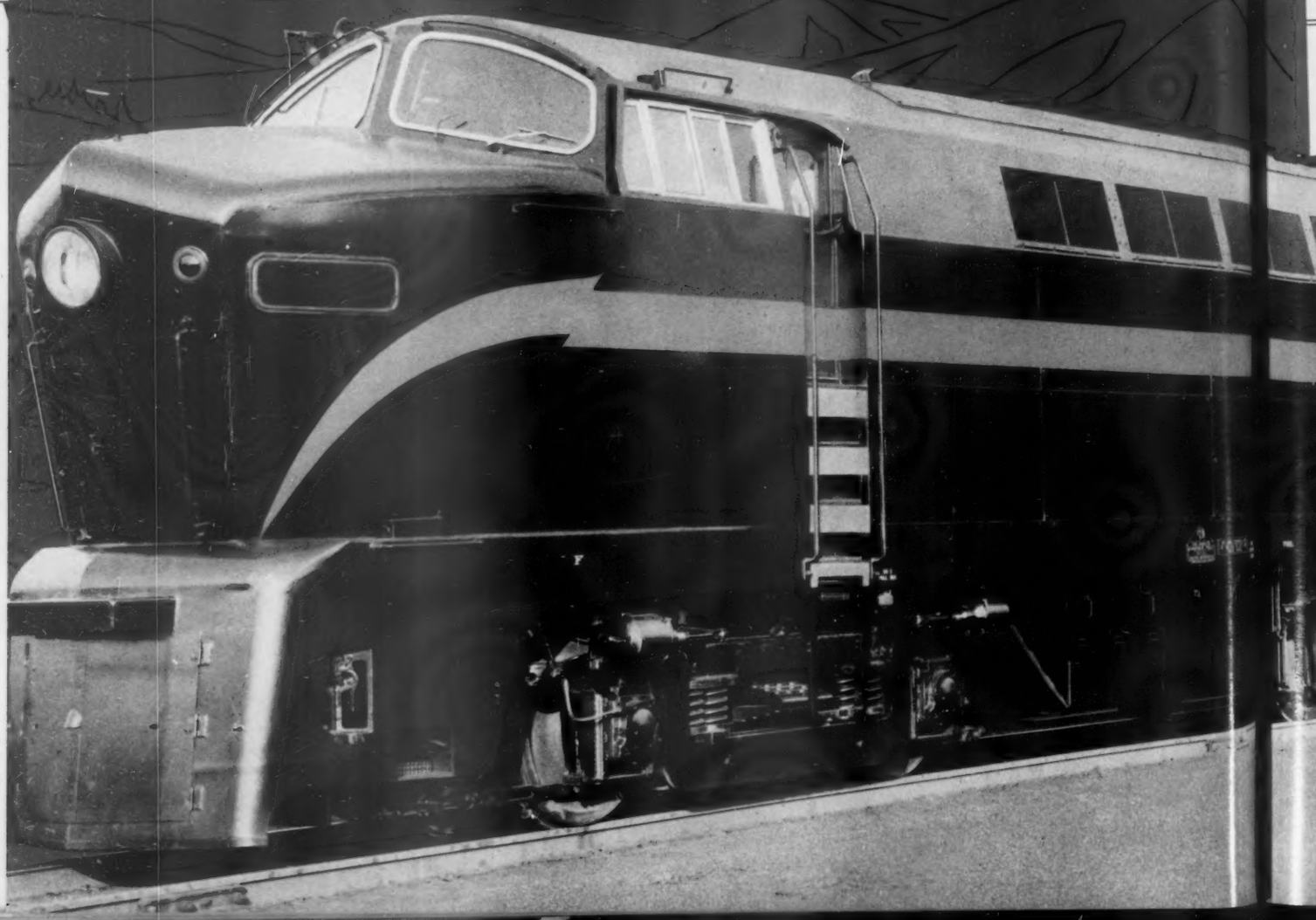
BALDWIN-
Westinghouse
ROAD FREIGHT LOCOMOTIVE

Long known as the "hauling fool" this star performer of the Baldwin-Westinghouse line of locomotives has now been made even more powerful than ever—6400 hp in full multiple operation—to meet the most grueling demands of main line freight haulage.

While along with this increase in power, have come a host of other improvements that increase operating ease, improve dependability, reduce maintenance requirements and improve fuel efficiencies.

There's improved no-transition, air throttle control for smoother, easier handling of trains and faster acceleration under the heaviest loads . . . dynamic

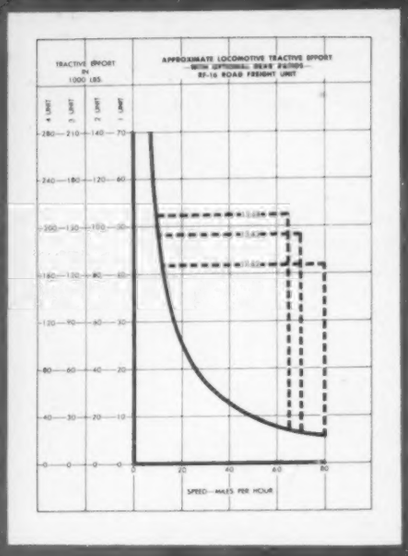
1600 hp per unit available for traction · Rating maintained up to 8000 ft. altitude



FOR HEAVY-DUTY FREIGHT OPERATION

braking with extra air capacity for better operating safety . . . a continuous capacity of electrical equipment that's 25% greater . . . a turbocharger that ensures full power output up to 8000 feet elevation . . . a rearrangement of auxiliaries to speed maintenance.

And there are many other features too numerous to mention. Together, they explain why this big Baldwin-Westinghouse road freight locomotive is turning in enviable performance records on some of the most punishing freight runs—why many railroads recognize it as the locomotive that consistently gives a big return on the investment.



High dynamic braking capacity · Ample weight on drivers

USE OF RATINGS	RATINGS		GEAR RATIO	MAX LOCO. SPEED	AMPS PER MOTOR	TRACTIVE EFFORT—LBS. 1600 HP 1-UNIT A	3200 HP 2-UNITS A-A	4800 HP 3-UNITS A-B-A	6400 HP 4-UNITS A-B-B-A	SPEED AT CONT. TR. EFFORT
Starting tractive effort is shown at 25% adhesion.	STARTING		15:68 15:63 17:62	65 70 80	1170 1240 1380	62,000 62,000 62,000	124,000 124,000 124,000	185,000 185,000 185,000	246,000 246,000 246,000	
Continuous rating or less may be used without any time limitations.	CONTINUOUS		15:68 15:63 17:62	65 70 80	1020 1020 1020	52,500 48,600 42,200	105,000 97,200 84,400	157,500 145,800 126,600	210,000 194,400 168,800	9.2 MPH 9.9 MPH 11.4 MPH
Any ONE short time rating may be used following operation at continuous rating. Before any short time rating is repeated, 30 min. operation must intervene at continuous rating or less.	SHORT TIME	20 Minutes	15:68 15:63 17:62	65 70 80	1100 1100 1100	57,600 53,400 46,400	115,200 106,800 92,800	172,800 160,200 139,200	230,400 213,600 185,600	
		10 Minutes	15:68 15:63 17:62	65 70 80	1150 1150 1150	60,800 56,300 48,900	121,600 112,600 97,800	182,400 168,900 146,700	243,200 225,200 195,600	

BALDWIN-Westinghouse Diesel-Electric Locomotives

BALDWIN-
Westinghouse
ALL-SERVICE
AS-616
LOCOMOTIVE

THE MOST VERSATILE U

One of the most versatile of all locomotives, this AS-616 locomotive by Baldwin-Westinghouse is equally at home in main line or branch line freight service, or handling switching, transfer or humping assignments. It has the weight—it's the heaviest locomotive of its type on the road—and the high starting and operating tractive effort to consistently walk away with the heaviest cuts.

A powerful workhorse of the road, it's designed and built to give long-time fine performance with a minimum of maintenance and operating costs.

Though normal axle loading is 54,167 lbs. per axle, some railroads may desire greater weight on the drivers to obtain better utilization of the high tractive efforts available from the new stepped-up electrical ratings. Whenever this is the case, ballast can be provided to give 62,500 lbs. average axle loading.

6 wheel trucks

•

6 traction motors

•

1600 hp per unit maintained up to 8000 ft. altitude

•

Higher continuous tractive effort ratings

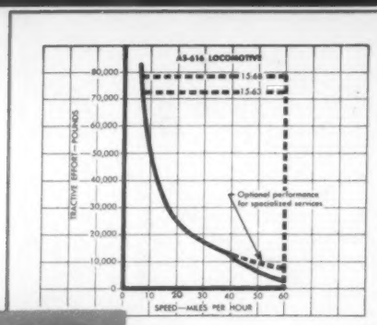
•

Engineered for heavy-duty service demanding high starting and operating tractive efforts

•

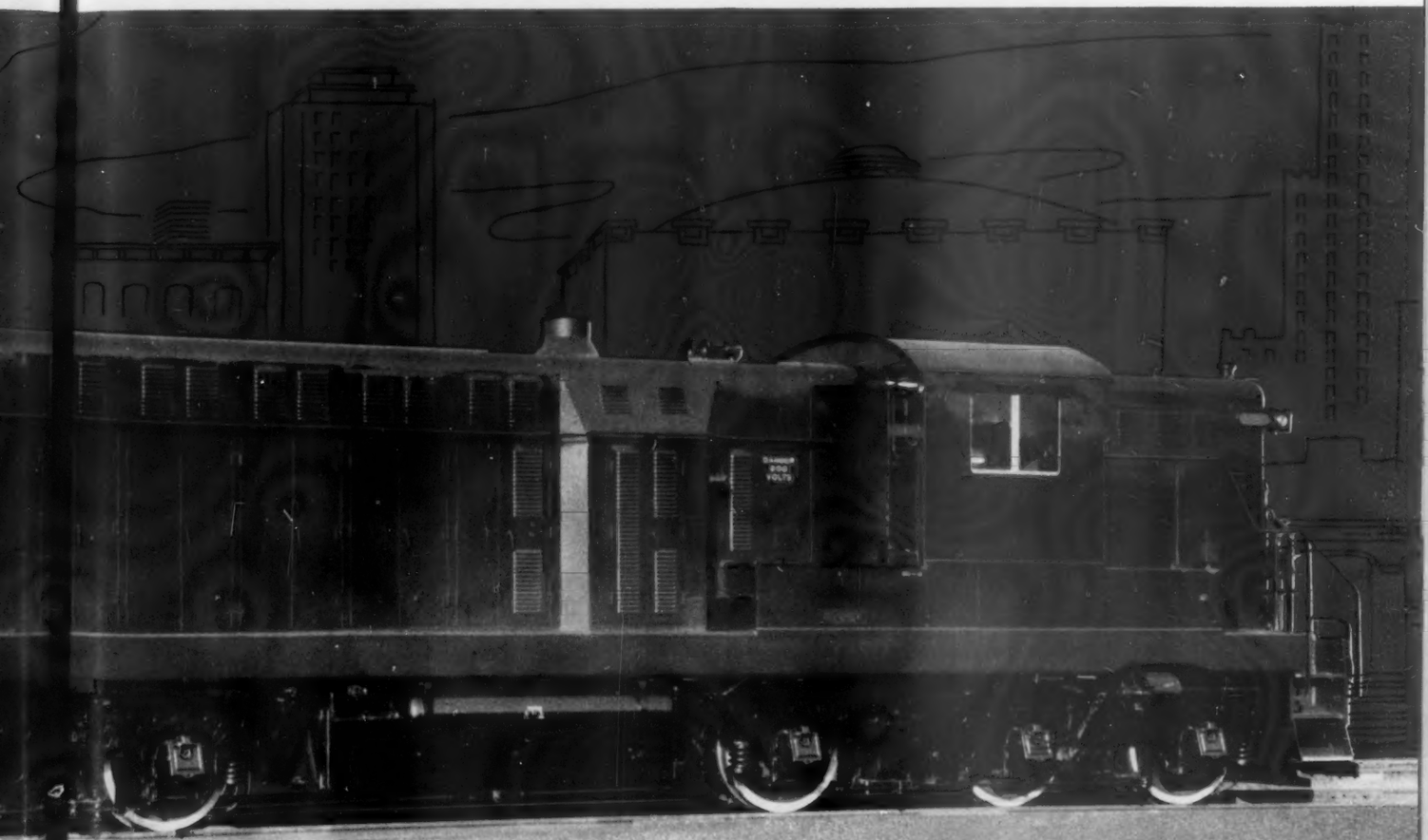
Designed for easy modification to fit every type of specialized service

LE UNIT ON THE RAILS



USE OF RATINGS	RATINGS		GEAR RATIO	MAX LOCO. SPEED	AMPS / MOTOR	TRACTIVE EFFORT—LBS.
Starting tractive effort is shown at 25% adhesion.	STARTING		15:68 15:63	60 60	*Note	81,250 81,250
Continuous rating or less may be used without any time limitations.	CONTINUOUS		15:68 15:63	60 60	1020 1020	78,750 72,900
Any ONE short time rating may be used following operation at continuous rating. Before any short time rating is repeated, 30 min. operation must intervene at continuous rating or less.	SHORT TIME	20 Minutes	15:68 15:63	60 60	1100 1100	86,400 80,100
		10 Minutes	15:68 15:63	60 60	1150 1150	91,200 84,450

*Note: Starting currents with 25% adhesion are well below maximum permitted for electrical equipment on all locomotives.



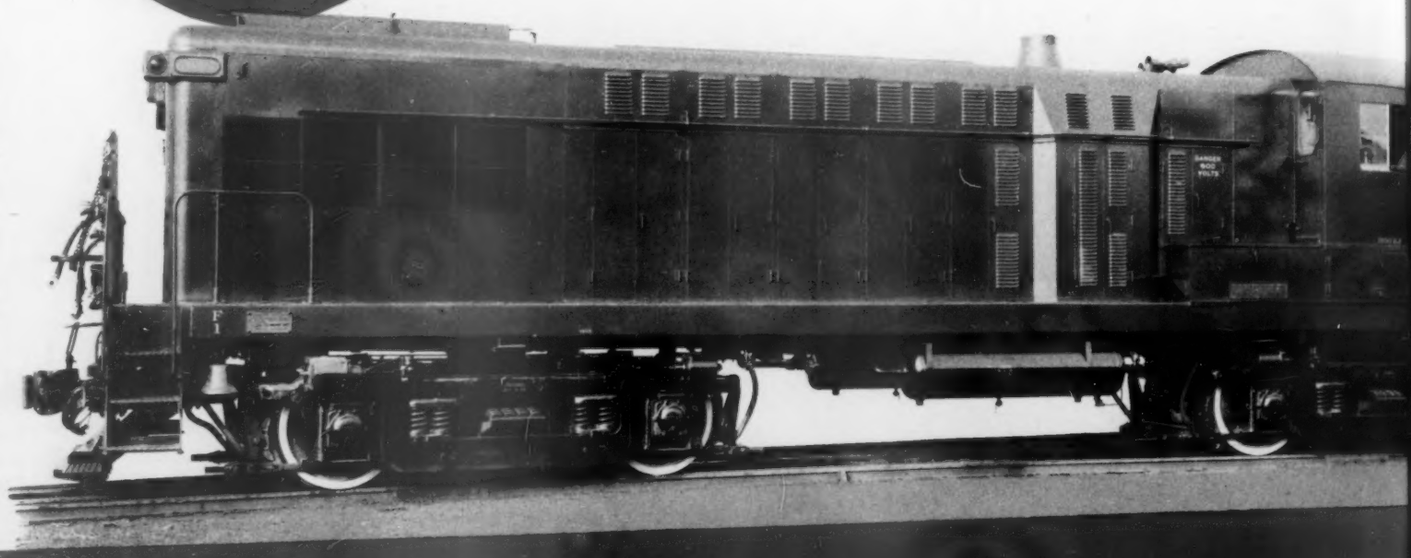
BALDWIN-Westinghouse Diesel-Electric Locomotives

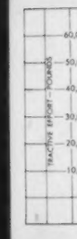
HERE'S "GET UP AND GO" FOR GE

BALDWIN-
Westinghouse
ALL-SERVICE
AS-16
LOCOMOTIVE

4 axles—4 motors
•
1600 hp per unit maintained
up to 8000 ft. altitude

High starting and continuous
tractive efforts
•
Optional gear ratios





BALDWIN-
Westinghouse
ALL-SERVICE
AS-416
LOCOMOTIVE

6 axles
•
4 motors
•
1600 hp per unit
maintained up to
8000 ft. altitude

POWER-PACKED—
BUT WITH LOW AXLE LOADING

Since some railroads require a low axle loading for certain types of service, this AS-416 All-Service Locomotive has been adapted to fit these specialized needs.

Although designed to serve the same purposes as the AS-16, and incorporating the same rugged electrical equipment as the other All-Service Freight and Transfer Locomotives, two three-axle trucks have been substituted to give the lighter axle loading required.

Tractive effort ratings are limited by adhesion rather than by motor capacity.

GENERAL FREIGHT AND PASSENGER ASSIGNMENTS

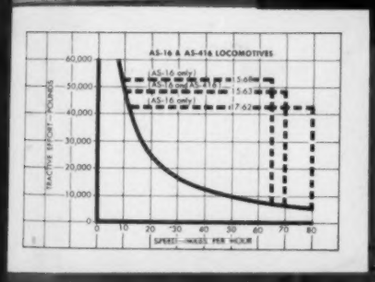
Long favorites of American railroads, both of these All-Service Locomotives now have an extra margin of power—a full 1600 hp—for even more satisfactory handling of freight and passenger assignments. Use them for main line or branch line service or for heavy yard switching—*anywhere* where a fast, powerful, quick accelerating locomotive can do the job.

At 25% adhesion the AS-16 gives a full 60,500 lbs. of tractive effort for moving heavy loads, and a top speed of 80 miles an hour (with 17:62 gear ratio) for fast movement of passengers or freight. Versatile, easy to operate, it has all the features needed for heavy, 24-hour-a-day work schedules, plus a ruggedness that ensures lowest maintenance costs.

TRACTIVE EFFORT RATINGS

USE OF RATINGS	RATINGS		GEAR RATIO	MAX LOCO. SPEED		AMPS PER MOTOR	TRACTIVE EFFORT—LBS.	
				AS-16	AS-416		AS-16	AS-416
Starting tractive effort is shown at 25% adhesion.	STARTING		15:68 15:63 17:62	65 70 80	— 65 —	Note	60,500 60,500 60,500	— 44,000 —
Continuous rating or less may be used without any time limitations.	CONTINUOUS		15:68 15:63 17:62	65 70 80	— 65 —	1020 1020 1020	52,500 48,600 42,200	— 48,600 —
Any ONE short time rating may be used following operation at continuous rating. Before any short time rating is repeated, 30 min. operation must intervene at continuous rating or less.	SHORT TIME	20 Minutes	15:68 15:63 17:62	65 70 80	— 65 —	1100 1100 1100	57,600 53,400 46,400	— 53,400 —
		10 Minutes	15:68 15:63 17:62	65 70 80	— 65 —	1150 1150 1150	60,800 56,800 48,900	— 56,300 —

Note: Starting currents with 25% adhesion are well below maximum permitted for electrical equipment on all locomotives.



BALDWIN-Westinghouse Diesel-Electric Locomotives

BALDWIN–
Westinghouse
S-12
SWITCHING
LOCOMOTIVE

HERE'S A RELIABLE, SEASONED PERFORMER

4 axles—4 motors

1200 hp supercharged diesel

BALDWIN–
Westinghouse
RS-12
ROAD SWITCHING
LOCOMOTIVE

A HELPFUL UNIT WITH PLENTY OF POWER

Longest of these three Baldwin-Westinghouse standard switchers is the RS-12 which has a starting tractive effort of 56,000 lbs. and the smooth control and excellent visibility needed for fast, safe switching. The extra length (the frame is a duplicate of the AS-16) is provided to give plenty of room for train heating boiler or dynamic braking. And it has the power—the speed—to double in brass as needed to handle the lighter types of combination branch line freight and passenger assignments, or terminal service.

TRACTIVE EFFORT RATINGS

	S-12	RS-12
GEAR RATIO	14.68	14.68
STARTING—25% adhesion	60,000 lbs.	56,000 lbs.
CONTINUOUS	34,000 lbs.	32,400 lbs.
Speed at cont. tract. effort	10.8 M.P.H.	11.4 M.P.H.
Cont. current (traction motor)	520 amps	520 amps

The differences in the tractive effort ratings between the S-12 and RS-12 are due to the use of 40-inch wheels on the former and 42-inch wheels on the latter.

4 axles—4 motors

•

1200 hp

supercharged diesel

BALDWIN–
Westinghouse
S-8
SWITCHING
LOCOMOTIVE

CONSISTENTLY THIS STURDY UNIT GIVES TOP

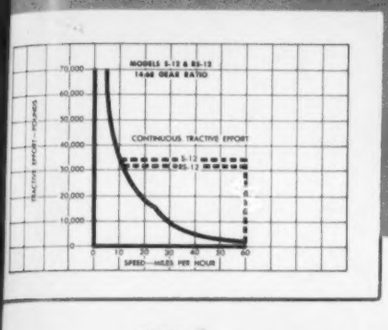
4 axles—4 motors—800 hp

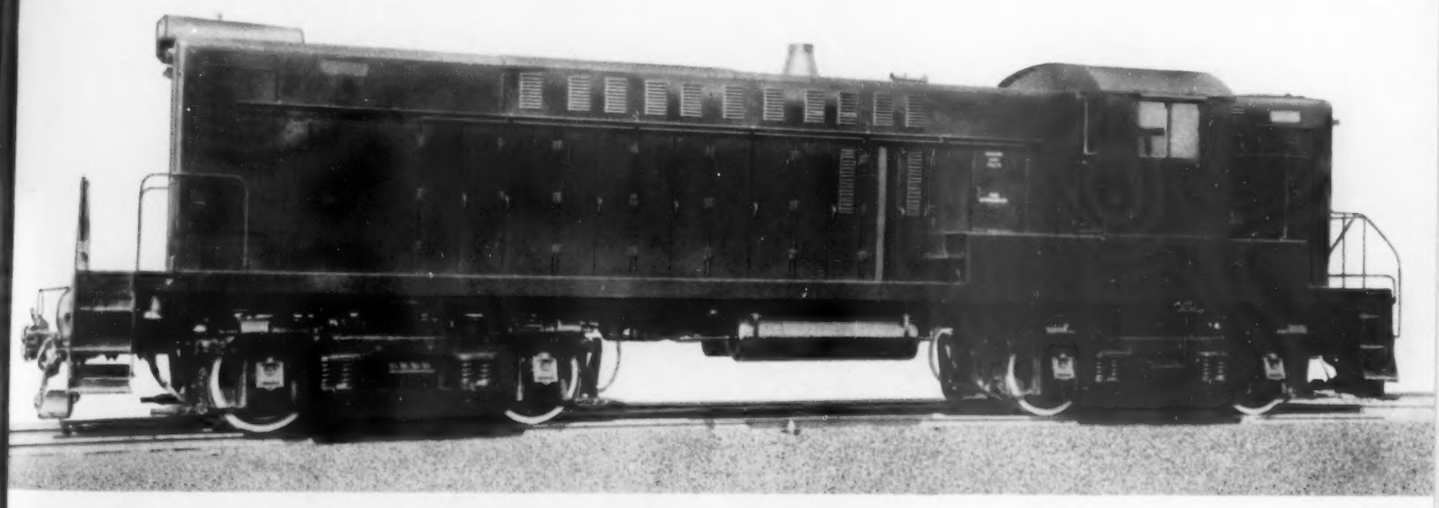
FOR GENERAL SWITCHING ASSIGNMENTS

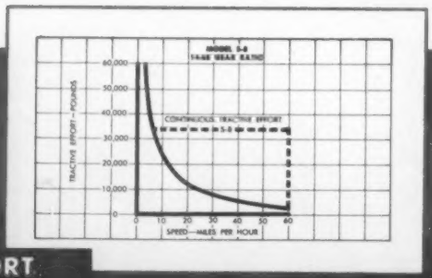
Heads may turn when the main line locomotives flash by, but it's the railroad man who knows the importance of the role played by the standard switchers—the all-round workhorses of the rail yards.

For this service, Baldwin-Westinghouse has developed three outstanding locomotives with a variety of important features: higher speeds that come from the new engine designs . . . improved locomotive frames featuring rugged structural shapes . . . air throttle, no-transition control that eliminates rough handling of trains . . . rearrangement of elements to give new accessibility and faster maintenance . . . plus a variety of other features that will speed freight movement.

Heavyweight of the Baldwin-Westinghouse standard switchers, the four-axle, four-motor, S-12 locomotive weighs 240,000 lbs. and has a starting tractive effort of 60,000 lbs. Equipped with a 1200 hp supercharged diesel engine, it's a tough, rugged worker that offers plenty of power for heavy, yard switching jobs.







PERFORMANCE ON THE TOUGH JOBS

No weakling, though the smallest in the line of powerful Baldwin-Westinghouse switchers, this locomotive fills a very important niche in terminal and switchyard operations.

A hundred-ton unit, it has a continuous tractive effort rating of 34,000 lbs. equal to the S-12. However, starting tractive efforts (because of weight) and continuous rating speeds (because of horsepower) are lower.

TRACTIVE EFFORT RATINGS

	S-8
GEAR RATIO	14.68
STARTING 25% adhesion	49,625 lbs.
CONTINUOUS	34,000 lbs.
Speed at cont. tract. effort	6.8 M.P.H.
Cont. current (traction motor)	520 amps

BALDWIN-Westinghouse Diesel-Electric Locomotives

BALDWIN–
Westinghouse
RT-624
ROAD TRANSFER
LOCOMOTIVE

2400 hp

FOR TOUGH TRANSFER ASSIGNMENTS

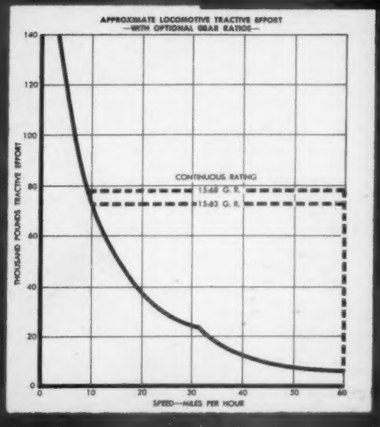
6 axles—6 motors
High continuous rating
High acceleration

TRACTIVE EFFORT RATINGS

GEAR RATIO	15.68	15.63
STARTING—25% adhesion	88,500 lbs.	88,500 lbs.
CONTINUOUS	78,750 lbs.	72,900 lbs.
Max. speed at cont. tract. effort	9.2 M.P.H.	9.9 M.P.H.
Cont. current (traction motor)	1020 amps	1020 amps
Adhesion %	22.25	20.6

Few single-unit, diesel-electric locomotives can equal or surpass this heavy road transfer locomotive for sheer brute force. With its six motors and its two new 1200 hp engines, it's powered to handle the toughest assignments in transfer, helper, humping, or heavy-duty switching service. At 25% adhesion, for instance, starting tractive effort is 88,500 lbs, while continuous rating at 9.2 miles per hour is 78,750 lbs.

It's a big brute for the big jobs—a rugged, high availability switching locomotive, designed and built with tremendous reserves of power to handle any switching load.



BALDWIN-LIMA-HAMILTON CORPORATION
Philadelphia 42, Pa.

BALDWIN-Westinghouse
DIESEL—ELECTRIC LOCOMOTIVES

CRITICIZING THE I. C. C. DOESN'T MEAN CONDEMNING IT

This paper has been sharply critical during the past year of the Interstate Commerce Commission's shabby treatment of the railroads; and some railroad men have expressed themselves in similar vein, though usually more politely.

There is, however, a big difference between disagreeing with people, no matter how fundamentally, and bearing ill-will toward them. We have yet to meet any railroad man who actively distrusts or dislikes either the commission as a body or the commissioners individually. Certainly this paper cherishes no bitterness toward them corporately or singly, but regards them somewhat as a missionary does the heathen—i.e., as potential proselytes rather than as hopeless rascals deserving annihilation.

Difference Is Fundamental

This difference in degree of disagreement is of fundamental significance. There is one kind of opposition which exists between two football teams, and quite another between two gladiators who confront each other knowing that they must kill or be killed. There is one kind of opposition which obtains between two political parties, where the victor permits the losing party to continue its threatening existence. Quite another kind of political conflict arises when one of the parties is known to be one which, once victorious, will proceed to "liquidate" all other parties, as happened in Russia, Germany and Italy.

The fundamentally civilized and pacific character of the disagreement between the commission and its critics cannot be too strongly or too frequently insisted upon. For the peace of mind of all concerned, the argument should be kept within the bounds of mutual tolerance because the argufying is bound to keep up until the commission, either voluntarily or under compulsion of law, starts concerning itself for the health of the wards under its "fostering guardianship," and quits looking on them merely as candidates for a licking. Recent commission policy toward the railroads can be summed up in a couple of lines from Mother Goose—those about the Old Woman Who Lived in a Shoe. It will be recalled that—

> She gave them some broth without any bread
> And whipped them all soundly and sent them to bed.

The railroads have begun to realize—although the "Old Woman" doesn't seem to—that their diet of lickings and "broth without any bread," one of these days is going to put them all in the morgue. When and if that happens, the Old Woman isn't going to be any happier with the result than her mistreated kids are at the prospect—so the complaints the Old Woman hears are intended, indirectly, for her benefit. While she cannot be expected to enjoy hearing her doctrine of "spare the rod and spoil the child" condemned as cruel, archaic, and unscientific—she should, at least, realize that nobody wants to annihilate her any more than, getting right down to cases, she herself actually wants to kill off her kids.

The Old Woman just needs to move up from 1902 to 1952—to awaken to the fact that she isn't running a reform school for Dead End Kids any more, but an academy of youngsters who are reasonably bright and well behaved; and who cannot possibly do their best work, so the Old Woman can take pride in them, unless they are fed and clothed and otherwise treated as well as the average in other modern institutions.

It just isn't possible to avoid conflict with the old gal—as long as she continues to be so tight with the keys to the cupboard, and so free with her use of the switch. She's either got to get wise to herself of her own initiative, or Congress will have to be persuaded to break her stick and put the cupboard keys in more generous hands. The alternative is destruction for both wards and warden. Meantime, there's no cause for either adversary to desire the destruction of the other. The application of some sound common sense can prolong the lives and enhance the reputations and the health of both.

The railroads can never lose sight of the probability, if they're so polite that they'd rather starve to death

than risk hurting anybody's feelings by complaining, that history would say of them that they got what they deserved.

There are defenders of the commission who insist that, given a free hand, the railroads would "price themselves out of the market." That is a matter of opinion and can never be proved one way or the other until, first, the railroads are given more freedom than they now have to initiate price changes for revenue purposes whenever their earnings fall, or threaten to fall, below the level being earned in other industry. As it is now, railroad managements have the responsibility for producing net earnings, but not the authority over prices to enable them to fulfill their responsibility.

RAILROADS EARNING LESS THAN 3 PER CENT

The railways actually earned only about $109 million net operating income in October, although it was reported that they earned almost $122 million. The difference of about $13 million was due to a non-recurring tax credit resulting from an adjustment of income taxes for the war years.

The last small advance in freight rates was in effect throughout September and October. What, then, do the results in those two months—the latest reported— indicate that the railways would earn annually if there were no changes in present unit costs or freight rates? Their net operating income in September was about $76 million and in October about $109 million—a total of $285 million. They normally earn about one-fourth of their annual net operating income in these months. Hence the earnings in September and October were at an annual rate of about $740 million.

Investment after depreciation at the end of 1950 was $24,647 million and undoubtedly will be increased in 1951 by at least $1 billion. Hence net operating income at an annual rate of $740 million is less than 2.9 per cent on present investment less depreciation. And this is what is being earned when return on investment should be much larger than average because being derived from a traffic made abnormally large by huge government expenditures for defense and when the purchasing power of each dollar of net earnings has been greatly reduced.

No economically informed person would question that the railways need and should be allowed an opportunity to earn an annual *average* of 6 per cent on investment less depreciation, which would now be just about $1,500 million. Why, then, are they earning less than half this rate of return in a period in which the volume of traffic they are handling, the national need for continuance of their large program of improvements and expansion, and every other pertinent consideration justify and demand the earning of a net operating income much higher than the average which they should earn in years of both large and small traffic?

There are various reasons why the railways are earning so much less than they should be; but all other reasons have become unimportant compared with the policy of rate regulation being followed by the Interstate Commerce Commission. The commission had before it in the recent rate case the most complete and conclusive evidence regarding their needs that the railways could present, as well as the expert knowledge presumably acquired by more than sixty years' experience in regulating rates. Nevertheless, the record seems to prove that the commission erred utterly and fantastically in estimating the net operating income the railways would derive from the rates it authorized them to charge. The only other conclusion that could be drawn from the outcome is that the commission intentionally authorized rates much too low to enable the railways to earn the return they need to continue as private enterprise, and to which they are lawfully entitled.

So we are confronted with this vitally important question: Is the commission (1) incompetent to estimate even approximately the effect of its decisions in rate cases, or (2) is it, for some unknown reason or reasons, determined not to authorize rates from which the railways can derive the average net operating income that they need and to which they are lawfully entitled?

If either or both of these conditions exist, they obviously must be remedied, or the railways will be driven into government ownership, dragging other means of transport with them.

Congress Has the Power

Failing a change of heart or mind by the individual commissioners, the only power great enough to apply a remedy is that of Congress. Fortunately there is no need for Congress to investigate. It already has done that ad infinitum, and consequently has ample evidence regarding the changes in regulatory legislation and policy needed. This is shown by the report and recommendations recently made by a subcommittee of the Senate Committee on Interstate Commerce which was summarized in *Railway Age*, October 29, pages 11-13. One important recommendation that that report might well have included, but did not, was one calling for the reenactment of Section 15A of the Transportation Act of 1920. This section contained a specific mandate from Congress to the Interstate Commerce Commission so to regulate rates as to give the railways as a whole opportunity to earn an average annual net operating income that would be a "fair return on a fair valuation."

Although the commission never fully obeyed both the letter and spirit of this mandate, it did so regulate rates during the decade 1921-1930 as to enable the railways to make a large enough increase in their investment to handle satisfactorily the record peacetime traffic of the twenties—and the enormously increased wartime traffic of the forties.

Aerial view looking east over the new yard and terminal built by the Union Pacific at Hinkle, Ore. The long building with the roof ventilators is the enginehouse and behind it is the two-track rip-track shed. The two elevated tanks in the left foreground are for water storage, and behind them is the power plant and large fuel-oil tank. The employees' clubhouse is beyond the oil tank and the yard office is beyond the rip-track shed

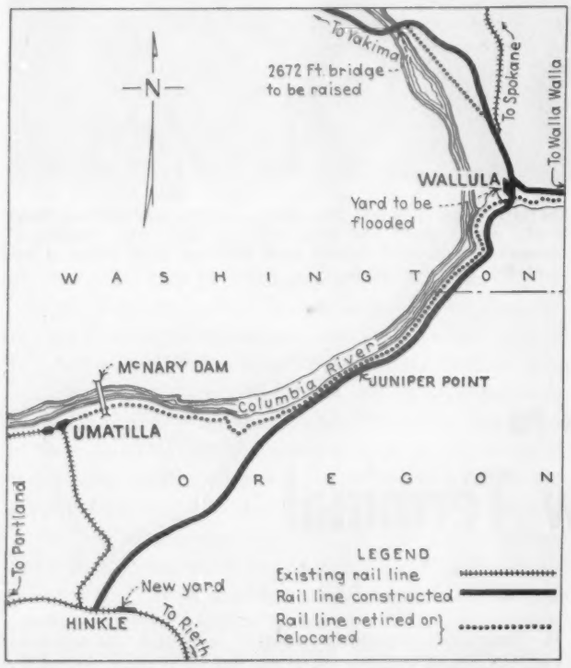
Line Change at Dam Site Leads to

Construction of New Terminal

Union Pacific consolidates switching operations and mechanical repair facilities from three points at Hinkle, Ore.

A locomotive servicing building in which the sidewalls consist almost entirely of glass blocks is only one of the outstanding features of a new terminal the Union Pacific has constructed at Hinkle, Ore. This terminal results from the construction of McNary dam—a $250 million

The enginehouse has continuous fenestration of glass blocks in its sidewalls. The blocks are of two types; the lower three courses have high light-diffusion qualities, while those above these give higher light transmission



Sketch showing the location of the new yard at Hinkle relative to McNary dam and the yards at Umatilla and Wallula. Rieth, site of another yard, is located about 25 miles to the southeast of Hinkle

project—in the Columbia river. Scheduled for completion in 1954, this dam will back water 60 miles up the Columbia river and 10 miles up the Snake. It will inundate highways, utility and communication lines, portions of three railroads, a freight yard, and a town within the new lake area. The three railroads affected are the Union Pacific, the Spokane, Portland & Seattle and the Northern Pacific.

On the U.P., the railroad which is most affected by the construction of McNary dam, portions of three lines are involved, one being the line from Spokane to Portland, which at this point follows the south bank of the Columbia river, another being a portion of the branch line from Wallula (Wash.) to Walla Walla, and the third being on the branch from Wallula to Yakima (Wash.). Wallula is the town that must be relocated on higher ground to escape inundation, and it is in this town that the U.P. has extensive freight yards. Rather than build the yards near the new location of Wallula, the railroad preferred to place them, including a new terminal—a $5 million project—at Hinkle, Ore., on its main line to Portland. This required the construction of a new line, 17 miles long, to connect Hinkle with a point on the relocated river line near Juniper Point, Ore.

The new yards and terminal at Hinkle were placed in operation on September 2, and this point is now the center of switching operations and terminal repair work that was formerly carried out at Rieth, Ore., and at Umatilla, Wash., and Wallula. Totaling 25 miles, the 41 tracks that make up the new terminal include 9 main freight yard tracks with a capacity of 1,355 cars; 8

The employees' clubhouse contains 63 private rooms for train crews and 9 other rooms for the staff employees

auxiliary yard, set-out, stockyard and scale tracks accommodating about 250 cars; 2 tracks serving new icing facilities of the Pacific Fruit Express, which can handle 145 cars; 2 passenger-train tracks; 8 shop, repair and servicing tracks; and a variety of yard leads, running and crossover tracks.

Other terminal facilities built, or in the process of being built, include a 350,000-gal. water storage tank 116 ft. in height; a 50,000-gal. water tank 50 ft. in height for servicing passenger trains; a well 555 ft. deep with a capacity of 1,200 g.p.m.; a 10,000-bbl. diesel fuel-oil tank; a 65,000-gal. black fuel-oil tank; a structural-steel and glass-block enginehouse; a reinforced-concrete combination freight and passenger depot; a reinforced-concrete yard office; a reinforced-concrete locker and wash-room building; a powerhouse of prefabricated metal; an employees' clubhouse; two sanding towers; a rip-track shed 430 ft. long covering two tracks; a diesel locomotive servicing platform; an ice-storage house; a 60-car capacity single-level dock for bunker icing refrigerator cars; four floodlight towers 112 ft. high; and 11 miles of underground pipe lines for steam, water, sewage, compressed air, diesel oil, black fuel oil and air-driven sand.

No Elevated Working Platforms

Perhaps the most unusual structure in this terminal is the enginehouse, in which the entire wall areas present a continuous fenestration of glass blocks above the foundation of the building. Another notable feature is that the depressed floor level is only 18 in. below the top of rail instead of the greater depths usually specified. Fixed elevated working platforms at cab-floor level are not provided.

The reasoning behind the decision not to provide elevated platforms is that the shop at Hinkle is not a major repair shop, but handles only minor running repairs. It is also believed that permanent elevated platforms are not needed at cab-floor level and that platforms of the movable type will prove adequate. Moreover, since both steam and diesel locomotives will use this repair shop for the time being, it had to be designed to handle both types of power. The continuous fenestration was chosen to promote maximum daylight illumination throughout the interior of the structure. Glass blocks were used for this purpose because they are easily hosed down for cleaning. It is anticipated that the savings in the cost of electrical power for lighting will offset the higher original cost of the extensive glazing.

Erected at a cost of about $265,000, the enginehouse is 60 ft. wide by 261 ft. long, and has two through tracks. It stands on spread footings and the foundation walls extend 3 ft. above ground level. Supported on this foundation is an all-welded structural-steel frame forming 20-ft. bays in which 12-in. by 12-in. glass blocks are laid to form the sidewalls. The end walls are of similar construction except that each of them is provided with two motor-operated steel rolling doors for the track openings. Each of the side and end walls has two access doors.

The south, east and west walls utilize two types of

Part of the icing facilities at the new yard. The two tracks along the ice dock will accommodate 145 cars

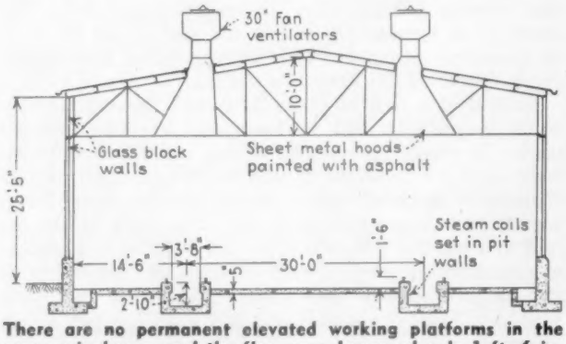
glass blocks. The lower three courses in these walls are laid with blocks having high light-diffusion qualities. Above these are blocks that have a higher rate of light transmission. On the north side of the building, the blocks are of a type that tends to intensify light transmission. Partitions within the building are made of glass blocks of the decorative type. Tilting ventilating metal-sash windows are provided in the walls. The roof is of corrugated Transite.

Inside each end of the building is a concrete apron 14 ft. wide and level with the tops of the rails. The floor then slopes downward on a 12-ft. ramp to the level of the depressed floor, which consists of a 5-in. reinforced concrete slab. The inspection pits extend the full length of the tracks and are equipped with steam coils set into the walls to melt ice from the locomotive units.

Ventilating System

An extensive ventilating system has been incorporated in the design of the building to discharge the diesel engine fumes and to provide proper ventilation for any working condition. Mounted over the tracks between the bays, with the exception of those at the ends, are a total of 22 hoods and ventilating fans. The hoods are mounted within the roof trusses so that one starts where another leaves off, so that wherever a locomotive may be parked a hood is available directly over it.

Each of the ventilators contains a 30-in. motor-driven fan with a capacity for discharging 9,370 cu. ft. per min. They also are equipped with motor-controlled dampers,



There are no permanent elevated working platforms in the new enginehouse, and the floor was depressed only 1 ft. 6 in. below the top of rail

each fan and damper being controlled independently from wall switches. Hence, any desired arrangement of ventilation can be selected by the workmen for any specific situation. Full on, the fans can change the air within the enginehouse every two minutes. Without the fans in operation, the dampers can be opened for gravity-type ventilation, or they can be closed completely.

Heat is supplied within the building by ten steam unit heaters, five mounted on each sidewall, which obtain their heat from the central power plant. All heated air is taken from the outside through air intakes in the sides of the building and none of the air is reheated or recirculated. This is done to provide fresh air at all times and to expel all gas or odor accumulations. Louvers on the unit heaters direct the heated air along one side of the interior and in the opposite direction to those on the other wall, thus producing positive circulation. Four additional unit heaters of smaller capacity are mounted near the track doors to prevent drafts when the doors are opened.

At one corner of the enginehouse, a small lean-to building was constructed to house a storeroom and a foreman's office. It is of the same type of construction as the enginehouse. The lean-to is lighted by fluorescent fixtures while the enginehouse is lighted by 52 incandescent fixtures suspended from the roof trusses.

The yard office, 38 ft. by 11 ft., houses a general office, a telegraph office, a record room, a general yardmaster's office, a conductors' office and a locker room accommodating 70 trainmen and switchmen. A pneumatic tube communication system connects the general office in this building with the passenger station.

The locker building is 24 ft. by 120 ft. and has separate facilities accommodating 70 enginemen and 90 shopmen and carmen.

The employees' clubhouse is no doubt the most popular building in the terminal. It is a two-story frame and brick structure erected at a cost of about $233,000. It provides lodging for trainmen in 63 private rooms and also accommodations for staff employees in nine other rooms. It also contains a lounge where trainmen can relax and read, a kitchen and a lunchroom.

The entire new facility was designed and built by the engineering department of the Union Pacific under the general direction of W. C. Perkins, chief engineer. The general contractor was the George H. Buckler Company, Portland, Ore.

If All Freight Cars Had Roller Bearings

. . . PART I—Status of Roller Bearing Standardization — Plain Bearing and Roller Bearing Performance[1]

The operating savings are calculated to be adequate to recover the $793 million additional investment in less than four years

By OSCAR HORGER
Chief Engineer, Railroad Division
Timken Roller Bearing Company

This paper presents an analysis of the engineering requirements and an economic study of costs, savings, and return on investment for roller bearings replacing plain bearings on all freight cars operating in interchange service. At the end of 1950 there was an ownership by Class I railroads of 1,744,625 cars, plus an additional private ownership of 262,983 cars, giving a total of 2,007,608 freight cars in interchange service.[2]

Such a complete bearing conversion would require a substantial time period, but ultimate investment returns are given here.

Practically all freight car trucks are now equipped with side frames of three general designs: (a) integral-box frame, (b) Andrews type, and (c) Vulcan type. It is intended that the same roller-bearing cartridge journal-box assembly[3] should fit into any of these three designs, as shown in Figs. 1, 2, and 3. A proposed standard design of axle journal, also shown (Fig. 1), will receive any of the several types of roller bearings. Both the axle and journal-box designs will greatly simplify the maintenance of spare axle assemblies and stores stock.

The roller-bearing journal, Fig. 1, on axles of various capacities may be machined from a worn plain-bearing axle. Its diameter is 3/16 in. above the condemning limit for the plain-bearing journal on any axle size. Several years ago fatigue tests were completed on full-size members of this general design and the findings submitted to the Mechanical Division of the Association of American Railroads. On the basis of these tests approval was given to the Timken Roller Bearing Company for limited application of this axle to 5,000 cars until the roller-bearing manufacturers could agree on a common journal geometry which would receive the bearings of various manufacturers.[4]

In order to reduce initial costs on new cars and obtain the advantage of a quick-wheel-change feature, it is proposed that the same cartridge unit, used on existing

[1] This is Part I of a two-part condensation of an "Economic Study of Roller Bearings on Freight Cars" presented at a railroad session during the annual meeting of the American Society of Mechanical Engineers at Atlantic City, N. J., on November 28, 1951.

[2] Statistics of Car Building and Car Repairing for 1950, American Railway Car Institute, September 1951. These figures include caboose cars but not 25,357 cars owned by Class II, III, switching, and terminal railroads.

[3] U. S. Patent 2,438,214, R. E. Horger, and others pending.

[4] The earlier design of this axle had a stepped journal of two different diameters instead of the uniform diameter in Fig. 1. The same journal fillet, axle diameter adjacent to fillet, and dust-guard design on the stepped axle were used on the axle in Fig. 1.

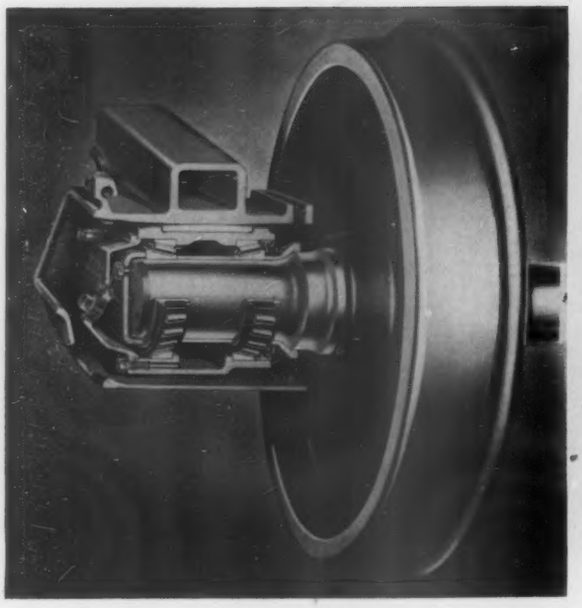


Fig. 1—Journal-box assembly in the integral-box truck side frame. The proposed standard journal is shown

Fig. 2—Andrews type side frame with the same cartridge journal box shown in Fig. 1

trucks, Figs. 1, 2, and 3, also be applied as shown in Fig. 4. Here the end of the side frame has a jaw-opening contour identical to the inside dimensions of the present integral-box frame. The jaw opening in Fig. 4 is less than for the Vulcan frame in Fig. 3 so that no strength difficulties would be expected in meeting static and dynamic test requirements on side frames. Present price schedules indicate about $72 less per car for the Vulcan than for the integral box frame. The quick-wheel-change feature on a plain-bearing truck using a Vulcan frame is only obtained at a premium of more than $83[5] above that for an integral box frame. This feature using the roller bearing, Fig. 4, is obtained at about $72 less per car[6] than for the construction in Fig. 1 which does not have the provisions for quick wheel change. An economic evaluation of this factor in changing wheels will be presented later in this paper. It is proposed that the A.A.R. Mechanical Division consider for standardization a frame jaw design similar to Fig. 4.

Freight car trucks have been designed around the conventional plain bearing journal box. There has been some consideration given to a redesign of the truck around the use of roller bearings so as to effect weight savings and lower costs. There are possibilities in this direction, but the interest along these lines has not been sufficiently aroused or intensive to promote the necessary engineering activity.

Where the truck pedestal opening is designed to receive a plain bearing journal box used on passenger cars a saddle member is interposed between the frame and cartridge unit. A cost penalty is involved in the heavier jaw design and the additional saddle member.

A.A.R standards adopted in 1947 include the use of a pedestal-type frame having a wide jaw opening.[7] The journal box assembly, frame jaw and axle journal are oversize considering operating requirements in ordinary freight service as compared with an adequate and less expensive design in Figs. 1 through 4.

The journal box in Fig. 1 is designed to operate on A.A.R. approved greases.[8] Great importance is attached to an adequate inclosure which will retain the lubricant and prevent foreign matter, such as dirt, brine drippings, and water, from entering the box. It is intended that this design will permit operation for a three-year period in freight service without inspection of grease or making additions. Since periodical air-brake inspection is scheduled every 36 months, this work will coincide with the bearing lubrication period. This provision alone is the most important single factor responsible for immense economic savings presented later.

Grease will better protect the bearings than oil during periods of idleness. Also less leakage of grease will be experienced than of oil. No moisture should be present in the box except that formed by condensation inside the box. The grease used has ample capacity for absorbing this small amount of moisture so it will not attack the bearing.

A unit seal assembly incorporating a rubbing member of synthetic molded material is applied at the rear of the box. It operates on a hardened-steel sleeve ground to 15-micro-inch maximum finish which makes it impossible to score or wear the axle. This inclosure is particularly effective in preventing contamination of the grease from fine particles of road dirt or dust from coal, cement or other kinds of lading carried in covered hopper cars.

Performance—Set-Offs Due to Hot Boxes

One measure in general use for showing bearing performance on freight cars is given by A.A.R. reports covering the car-miles per hot box for cars set off between division terminals. A graph of this data is plotted in Fig. 5 representing the average condition found with plain

[5] Based on 50-ton cars; this figure is over $73 for 40-ton cars and over $119 for 70-ton cars. Actual costs may vary from scheduled prices.

[6] Based on 50-ton cars and assuming the price of the frame in Fig. 4 does not exceed that for the Vulcan frame in Fig. 3.

[7] Manual of Standard and Recommended Practice, D-12A-1948, Association of American Railroads, Chicago. Over 1,100 car sets of this design are in service.

[8] Code of Rules for the Interchange of Traffic, Supplement No. 2, 1950, Revision p. 4, rule 66-A, Association of American Railroads, Chicago.

Fig. 3—Vulcan type frame with adapter between the jaws and the cartridge journal box shown in Fig. 1

Fig. 4—Modified Vulcan frame for new cars using the same cartridge journal box as in Fig. 1

bearings on freight cars of all Class I railroads. This indicates that a continuous performance deterioration has occurred over the last several years, and that lower performance is marked in the periods of hottest and coldest weather.

Some explanations which have been offered for the deterioration in performance are a reduction in man-hours used in plain-bearing journal-box inspection due to a five- instead of a six-day work week; and that the higher average speed of freight trains (stimulated by the increased use of diesel-electric locomotives) has led to serious wrecks from broken or burnt-off journals. On many railroads train crews have been made responsible, with the result that more cars are set off rather than to risk wrecks. When train speeds were slower and stops more frequent such cars could be "nursed" into the terminal.

Train movements have definitely changed in the last few years. Improved signal systems and operation of the same locomotive over several divisions, without fuel or water stops, give cause for little delay and result in more continuous train operation. This is so marked that inspection forces complain of the lack of time allowed them at division points for the required plain-bearing journal-box inspection. Even the length of trains has increased so as to utilize the greater tractive force of present-day motive power so that it is more difficult to detect hot boxes.

The increasing seriousness of accidents from broken-off plain-bearing journals[9] is presented in Fig. 6. In 1950 they were costing an average of 14.9 cents per 1,000 car-miles which is more than double the average for 1946. Furthermore, this cost only includes the items of repair to equipment and way and structures and clearing wreck; nothing is included for lading damage, detouring trains, train delays, injured and killed employees, etc. In this five-year period four were killed and 86 injured in both freight- and passenger-train accidents due to broken journals, with most of the fatalities occurring in freight-train service.

Few accidents have been reported on roller bearing axle journals on passenger cars, locomotives, or freight cars. Some roller-bearing journals have burnt off but no serious accidents have occurred. The end of the axle opposite the broken journal prevents the axle from getting out of the truck because the roller bearing completely surrounds this journal and tends to hold and stabilize the broken and fluttering end of the burnt-off journal in better truck alinement.

Performance—All Hot Boxes

In addition to mileage for hot-box set-offs between division terminals Railroad A also records the number of hot boxes which (a) cause train delay though the car is not set off and (b) do not cause train delay but do make it necessary to change a brass or repack the box.[10] Much less change over the years is evident (Fig. 7) where all hot boxes are considered as contrasted with only the hot boxes causing set offs on this railroad, or those of all Class I roads shown in Fig. 6.

Journal packing is sometimes robbed from the box and in some localities this thievery reaches serious proportions. On one division of one railroad 100 cars were set off due to hot-box condition during one year where the packing was found missing. This number represented 11 per cent of all cars set off.

A still further criterion as to plain-bearing performance can be found from a study of the number of axles removed from cars for cut journals alone and also the total number of cars having bearing defects.[11] Fig. 8 discloses the results of such a study made from detailed

[9] Data from I.C.C. accident reports, code numbers 2419, 2420, and 2421 for broken journals on freight cars. These accounts only include acidents where costs exceeded $150 for years 1946-7, $250 for 1948, and $275 for 1949 and 1950.

[10] In these figures no hot box is counted more than once on any division during the same trip even though it is necessary to repack or rebrass the box more than once.

[11] A defective bearing is defined here as one requiring attention other than periodical repack or other requirements under interchange rule 66 or yard and terminal inspection; it includes hot boxes, cut journals, and repack, rebrass or R & R (remove and replace), etc., because of improper bearing conditions found in service operation.

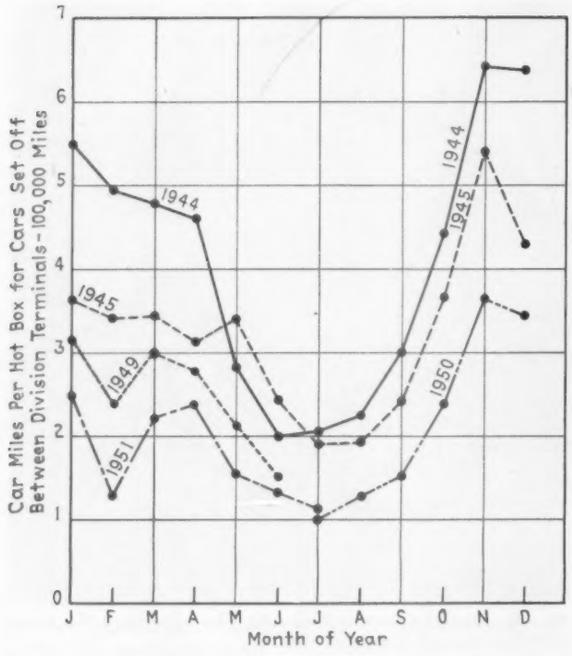

Car Miles Per Hot Box for Cars Set Off Between Division Terminals - 100,000 Miles
Month of Year
J F M A M J J A S O N D
0 1 2 3 4 5 6 7
1944
1945
1949
1951
1944
1945
1950

Fig. 5—Plain-bearing performance on freight cars of all Class I railroads. Cars set off for hot boxes

records of two large railroads. For Railroad C the average freight-car mileage was 98,000 car-miles per pair of wheels removed for a cut journal as compared with 247,000 car-miles per car set off between division terminals for a hot box and only 49,000 car-miles per defective bearing; for Railroad D this same comparison is 70,700, 121,000 and 45,000 car-miles, respectively. It is interesting to observe that the car-miles per bearing-defect are very much the same (45,000 and 49,000) for these two railroads even though the car-miles for cars set off and cut journals exhibit large variations.

Accurate data of the above character is not available without research into detailed records. In the absence of more complete data, it was assumed in this economic study that all Class I railroads would have an average value of freight car-miles for bearings and wheels as shown in Fig. 8. Here the values were selected from the known performance of railroads C and D. Later the wheel performance values in Fig. 8 are used to evaluate the economics of a quick wheel change feature provided by roller bearings (Fig. 4).

Some railroads have a disproportionate and large percentage of hot boxes on cars in short-haul traffic or where lading of powdered nature contaminates the plain-bearing assembly. In fact one railroad is currently applying roller bearings to over 1,000 pulpwood and covered hopper cars for these reasons.

Mitchell[12] obtained 115,000,000 car-miles on his "Pacemaker" freight cars operating in assigned service on the New York Central with nine recorded journal heatings of plain bearings over a certain period; over a later period 42,000,000 car-miles were operated without a journal heating. He suggested several factors as affecting this performance, which included reducing the capacity of the car from 50 to 25 tons whereas the actual average lading was only 12.5 tons.

[12] F. K. Mitchell, "Lubrication and Hot Boxes," Proc. Jr. Pacific Railway Club, V. 33, July 1949, p. 17-22.

It is customary practice on many railroads to give cars in such trains more thorough inspection and servicing than is given cars in other freight trains. No mention is ever made of the extra costs involved in the special handling of these cars to obtain such phenomenal bearing performance records.

Fig. 9 shows the net or revenue load plotted against the car-miles per hot box for 1,624 cars set off between division terminals on Railroad B. Except for Point *A* in Fig. 9 a systematic deterioration in bearing performance results with increasing journal load. Point *A* includes about one third-tank cars. When these cars are omitted from the calculation Point *B* is obtained which falls on the curve.

Shoemaker[13] reported that of 1,900 cars set off due to hot boxes substantially all of them were loaded cars. On another railroad 74 per cent of the cars set off were heavy loads, 20 per cent were light loads, and 6 per cent were empties. On one railroad where loaded coal cars represented about 11 per cent of the system mileage for loaded cars it was found that 30 per cent of the cars set off for hot boxes in one year were cars loaded with coal. In another case about 11 per cent of the cars set off for one year were loaded with sand, gravel, stone, or pulpwood even though this traffic was only slightly over one per cent of the total loaded car-miles for the system.

The railroads in the Pocahontas region hauling coal generally have considerably better hot-box performance from the standpoint of cars set off than most of the other roads. Their record is often submitted as an example of what can be done and to refute the findings shown in Fig. 9. The records of these coal roads may be explained by such factors as: (1) generally a higher density of traffic which permits them to support and concentrate more expense on journal-box maintenance; (2) a larger percentage of system cars remain on their lines or in routed interchange; (3) a smaller proportion of foreign cars is handled; (4) they do not receive much traffic from many interchange points where inspectors are not maintained; and (5) they have little short-haul traffic.

Fire Losses Due to Overheating

Overheated plain bearings on freight cars lead to considerable fire damage and destruction to cars and contents. The number of these fires and their costs are given for three years[14] in Fig. 10. While this economic loss was only 1.59 cents per 1,000 car-miles in 1950 it was over twice the cost in 1948. An A.A.R report[14] states with reference to eliminating these fires "an ultimate

[13] Perry M. Shoemaker, "The Railroads' Journal Bearing Problem," Proc. New York Railway Club, V. 59, No. 8, October 20, 1949, p. 181-185.
[14] Fire Protection and Insurance Section, No. 115, June 1949; Nos. 119-120, June-Sept. 1950; No. 123, June 1951; Association of American Railroad, Chicago.

TABLE 1—Mileage Record on Some Roller Bearing-Equipped Freight Cars

Railroad	Number of Cars	Type Car	Car-Miles Accumulated Estimated
1	800	50 Ton Stock	85,375,000
1	9	50 Ton Box	4,904,000
2	5	50 Ton Box	527,000
3	1,000	70 Ton Hopper	38,694,000
4	50	50 Ton Box	1,312,000
5	40	50 Ton Box	11,706,000
6	10	50 Ton Box	951,000
6	12	70 Ton Cover Hopper	6,200,000
7	20	70 Ton Ore	800,000
7	48	50 Ton Box	8,706,000
8	10	70 Ton Hopper	120,000
9	21	70 Ton Cover Hopper	1,103,000
9	400	70 Ton Cover Hopper	3,000,000
10	77	70 Ton Cover Hopper	2,367,000
10	6	Caboose Cars	484,000
11	20	Caboose Cars	822,000
Total	2,528		167,071,000

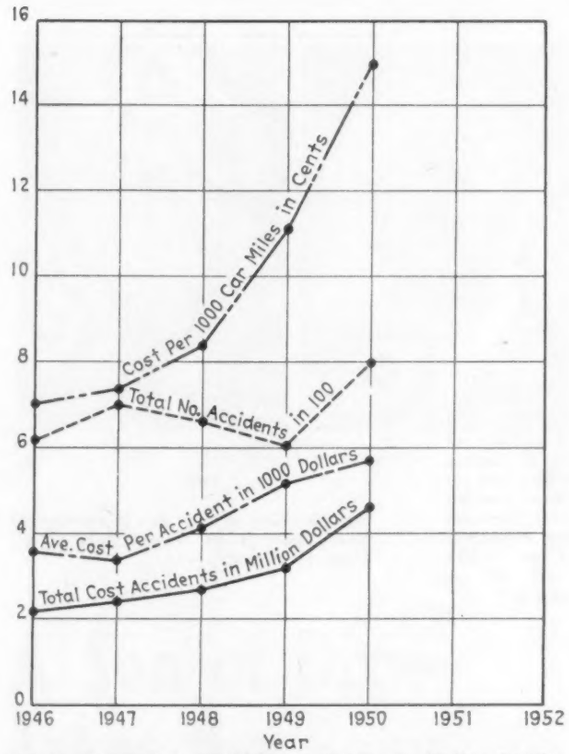

Cost Per 1000 Car Miles in Cents
Total No. Accidents in 100
Ave. Cost Per Accident in 1000 Dollars
Total Cost Accidents in Million Dollars
Year

Fig. 6—Reportable accidents to I.C.C. for broken freight-car journals for all Class I railroads. Costs include repairs and clearing wrecks only

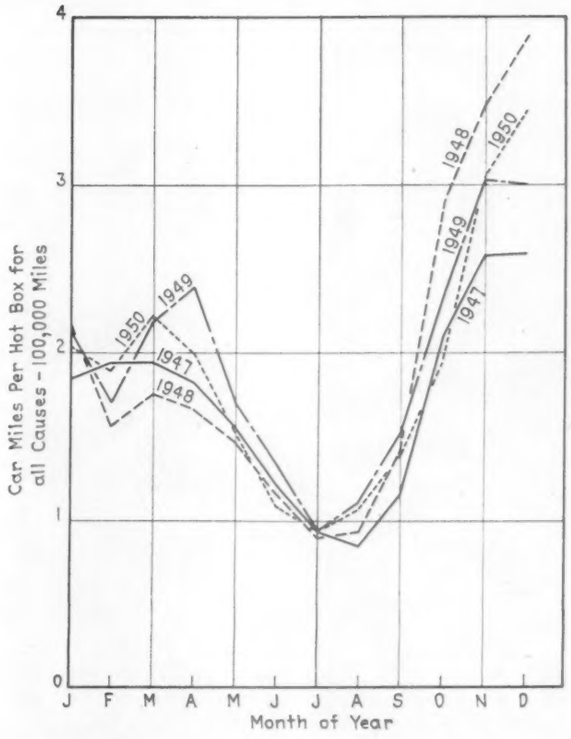


Fig. 7—Freight-car miles per hot box using total number causing set offs or road delay or no delay for Railroad A. **(See page 39 for text references)**

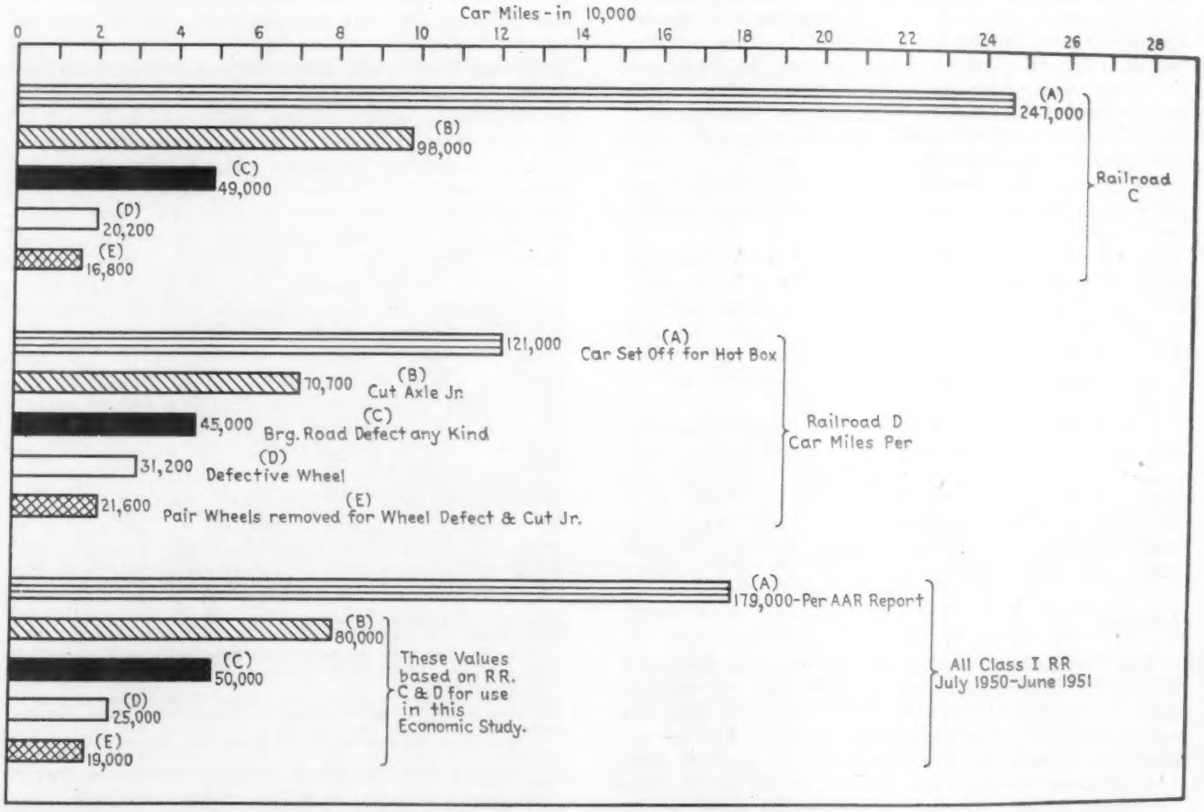

Car Miles - in 10,000
(A) 247,000
(B) 98,000
(C) 49,000
(D) 20,200
(E) 16,800
Railroad C
121,000 (A) Car Set Off for Hot Box
70,700 (B) Cut Axle Jn
45,000 (C) Brg. Road Defect any Kind
31,200 (D) Defective Wheel
21,600 (E) Pair Wheels removed for Wheel Defect & Cut Jr.
Railroad D Car Miles Per
(A) 179,000-Per AAR Report
(B) 80,000
(C) 50,000
(D) 25,000
(E) 19,000
These Values based on RR. C & D for use in this Economic Study.
All Class I RR July 1950-June 1951

Fig. 8—Freight-car performance data for all plain-bearing defects and wheels removed

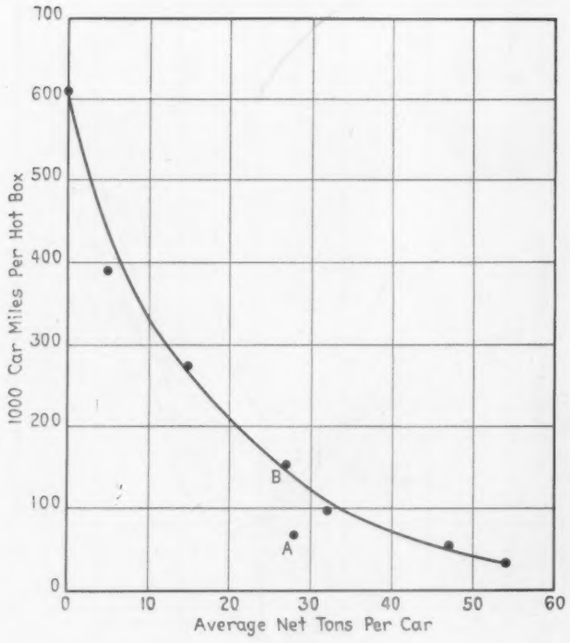


Fig. 9—Effect of weight of lading in freight cars on hot boxes causing set offs between division terminals. Based on 1,624 cars set off on Railroad B

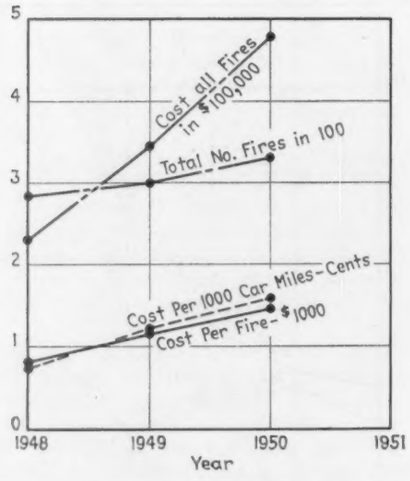


Fig. 10—Cost of fires due to overheated plain bearings on freight cars of all Class I railroads

remedy would be the replacement of the present type of bearings with roller bearings."

A record of 167,071,000 car-miles is exhibited in Table 1 for 2,528 freight cars equipped with roller bearings on twelve different railroads. Only one hot box has developed in this mileage and no other cars have been set off between or at division terminals. In this economic study a value of 15 million car-miles per hot box (including those causing set off, road delay or no delay) is used. This value is very conservative considering the above record on freight cars and still greater mileage experience on passenger cars and locomotives. It is further calculated in this study that after the bearings have been in service for many years the average yearly replacement will be three per cent as determined by inspection at the time wheels are replaced.

In addition to the above freight cars 625 cars are being currently equipped. Also 550 express refrigerator cars have been in service for over 3.9 years and 258 freight cars on one foreign railroad operating through desert territory. Privately owned cars, not shown, also total 3,068 cars operating on various industrial or mining properties.

It is too often assumed that the roller bearing application represents a considerable increase in weight over the plain bearing. A reduction in weight of 272 lb. actually accompanies the roller bearing on new cars (Fig. 4) if compared with the integral-box frame with plain bearings; a reduction of 720 lb. if compared with the Vulcan frame with plain bearings.

Friction

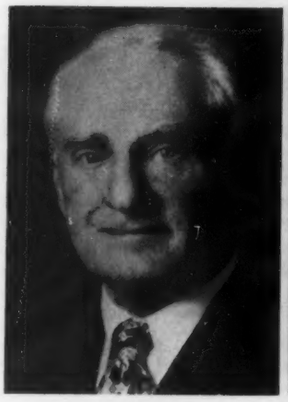
This economic study does not attempt to evaluate any differences in the frictional characteristics of the two types of bearings. Laboratory test results are often submitted to prove some contention, but such findings are based on a static radial loading with no application of (a) dynamic loading, (b) lateral forces, or (c) displacements which take place in the bearing under service conditions.

It is well known that a radially loaded plain bearing which has established an oil film of clean oil and reached equilibrium temperature presents good frictional values. So when laboratory tests are made with waste-packed bearings under ideal conditions, it is not difficult to find low frictional values. Various attempts to improve the plain bearing by using separate sleeves on the axle, improved dust guards, and tight lids, waste retainers, pad and pump lubrication, and other means may contribute to improved operation, but the desired performance requires ultimate design changes and costs which have led all other types of industries to adopt roller bearings.

Actual road tests by several Class I railroads on passenger[15] and freight[16] trains have evaluated the frictional resistance of the two types of bearings. These investigations leave no doubt concerning the greatly reduced starting effort in favor of the roller bearings. Further evidence of this is apparent on passenger trains where slack between the coupled cars is virtually eliminated and roller bearings on the cars facilitate an easy and impact-free start. Since the starting of plain-bearing-equipped freight trains depends upon serially starting coupled cars, it is necessary to provide a certain amount of slack in the couplings, which requires maintenance to keep it within proper limits. This question of slack has been discussed in the literature from the standpoint of draft gear failures, maintenance, operation, and lading damage.[17,18,19] Roller bearings will permit the reduction of slack in the couplings between freight cars; while no operating data is presently available, it is logical to expect material improvement in the deficiencies present with plain bearings.

[15] "Rolling Resistance of Freight and Passenger Cars Equipped with Roller Bearings," Report on Assignment 9, Am. Rail. Eng. Assoc., V. 50, 1949, p. 206-209.
[16] "Roller Bearings for Freight Cars," Report of the Mechanical Advisory Committee to the Federal Coordinator of Transportation, Assoc. Am. Railroads 1935, p. 210-213.
[17] "Draft Gear Maintenance," G. Q. Lewis, Car Foreman's Assoc., April 13, 1942.
[18] Mastering Momentum; Lewis K. Silcox, Simmons-Boardman Publishing Corp., 1941.
[19] "Protection of Lading and Equipment," P. W. Kiefer, Mech. Engrg., V. 70, Dec. 1948, p. 1018.

To be concluded.



Ernest Eden Norris

Harry Ashby DeButts

A Son of Dixie Takes the Reins On the Southern

Norris becomes chairman after half-century of active railroading and DeButts assumes presidency of system

On January 1, Ernest Eden Norris becomes chairman of the Southern Railway and Harry Ashby DeButts, heretofore vice-president in charge of operation, succeeds him as president—as briefly noted in our December 3 issue. The new chief executive has railroaded for 35½ years (not including a year of World War I military duty), and his entire career has been with the Southern, where he went to work immediately on completing his education in civil engineering. As president of the South's largest railroad, he brings with him a background which is wholly Southern. Virginia has been his lifetime home except as the exigencies of his railroad career took him temporarily elsewhere. His present residence at Upperville is only a few miles away from Delaplane, where he was born, and where his father was engaged in farming and horse-raising.

Mr. Norris has been with the Southern for more than 49 years—including the time he spent as operating vice-president and subsequently as receiver of the Mobile & Ohio, at that time a Southern affiliate. They have been eventful years, especially since October 21, 1937, when he became president of the system. It was, incidentally, on that same day that Mr. DeButts succeeded him as operating vice-president—so Mr. DeButts' incumbency as head of the operating department has exactly coincided with that of Mr. Norris as chief executive.

Installing a track scale in the Ernest Norris Yard, under construction at Birmingham

In the first full year of the Norris regime the Southern Railway (excluding subsidiaries) operated 6,641 miles of line, which had declined slightly—to 6,346 miles—by the end of 1950. But in 1950 the Southern hauled just *twice* as many tons of revenue freight as in 1938, with an even larger increase in ton-mileage. And passenger-miles in 1950 were 52 per cent greater than in 1938.

This vastly increased traffic was handled with practically no increase whatever in freight train-mileage and with a decrease of 15 per cent in passenger train-miles. Operating revenue in 1938 was $89.4 million and, in 1950, $239.9 million, an increase of 168 per cent. Net funded debt, meantime, was decreased by $50 million. Fixed charges (interest and rents) were reduced by more than $3.6 million.

Quite a record for the brief span of a dozen years!

Mr. DeButts, when asked what he considered to be the outstanding accomplishment of Mr. Norris' leadership, answered quickly: "First, he did for our organization what can best be characterized as 'humanizing' it. Second, he made through the railroad a great contribution to the industrialization of the territory the system serves—thereby advancing the prosperity of the area, and incidentally of the company. During his regime dieselization was initiated—which will be about 95 per cent complete when the 100 additional units now on order are delivered; and the comprehensive program of yard improvements, which is about 50 to 60 per cent complete, was begun."

"Nothing short of a national catastrophe is going to stop the continued progress of our part of the country," Mr. DeButts went on to explain. As a consequence, he

THE
SOUTH
Put it there!
YES, right there in the modern industrial Southland. That's the place for your factory if you want to see it grow.
For man and nature have combined in this fabulous opportunity-land to make the South the most promising "industrial real estate" in all America today.
Along the Southern Railway System, there is room and reason for industries to grow... boundless natural resources... large and fast-expanding markets... a moderate climate... everything industry needs for sound, sturdy growth.
"Look Ahead—Look South!"
SOUTHERN RAILWAY SYSTEM
The Southern Serves the South

The Southern boosts its territory with advertisements like this

looks upon the task ahead of him as "exhilarating." While not discounting troubles aplenty, which the Southern suffers along with other railroads, he intends to build upon the foundations laid by his predecessor, in which constructive work he had so large a hand, and he is hopeful to the point of confidence in a happy outcome. If such is not the result, it will not be for lack of definite and carefully thought-out objectives on the part of the new chief executive.

His conclusions on some crucial questions of policy are clear and unequivocal. For one thing, he does not believe that railroad freight service, on the average, is as fast and dependable as present-day competitive conditions require—and he believes that most of the answer will be found in the wholesale modernization of yards, terminals and freighthouses.

"With diesel power, our trains move as fast from terminal to terminal as we can reasonably expect," he goes on to explain, "but we lose too much time in terminals. Every time a train enters an old-fashioned yard, before it can get moving out on the line again, the average competing truck has made a couple of hundred miles on the highway. We have got to organize ourselves to move freight in solid blocks, avoiding yarding as far as possible; and we've got to have modern yards to reduce drastically the time lost, and also the damage to lading."

Mr. DeButts does not find fault with railroad managements for not having yet solved the problem of terminal delays—because, first, the necessary improvement involves the expenditure of a lot of money, a commodity which is perennially in short supply on most railroads. He believes, moreover, that the problem has grown in importance with great rapidity in recent years, perhaps too fast for its full significance to be grasped—and that statistics in general use as yardsticks of operating efficiency tend to throw too much of the spotlight on line operations and not enough on terminal and freighthouse performance.

"There's a lot of difference," he points out, "in the money that can be lost around a freighthouse with laborers at $1.40 an hour and frequent overtime at penalty rates, and what it was possible to lose in the old days of a comparatively short time ago, when we had a long work-week and paid 34 cents an hour for labor."

"I'm afraid," he concluded, "that a good many railroad men are happier than they ought to be at their splendid increases in tons per train-mile and ton-miles per train-hour—when they may be suffering increased losses in their terminal operations which a great deal more than offset all their praiseworthy improvement in the efficient use of power and crews in line-haul movement."

To Continue "Humanizing"

Mr. DeButts, as already noted, gives his predecessor high credit for "humanizing" the system's organization. There cannot be the least doubt that this process will be carried forward relentlessly under the new regime. Internally, the new president is known among his colleagues as an attentive listener and team-worker; and as an alert and foresighted recruiting officer and educator. Some years ago he and seven of his colleagues in the higher echelons of the system's management personally purchased some mountain camp property not far from Asheville, N. C., and have made it available for frequent conferences of different groups of the company's supervisory forces—as many as 100 being accommodated at one time, under conditions conducive to getting acquainted and conferring, with a minimum of the distractions which arise when such sessions are held in urban surroundings, or at those better fitted with orthodox recreational facilities.

Not the least of Mr. Norris' claims to fame has been the caliber of the department heads with whom he has surrounded himself; and even a brief conversation with the new chief executive will inevitably lead to the conclusion that organization, and the selecting and education of officers and supervisory personnel, are right at the top of his list of "musts." Mr. DeButts is as eager an inquirer about what other railroads and other industries are doing in this direction, as he is a practitioner on his own railroad of this most important of all the arts of executive leadership.

And he is no less deeply concerned with the all-embracing and all-important activity known as "public relations," which he sees as inextricably interwoven with satisfying intra-railroad personnel relationship—supervisory as well as rank-and-file; and with a quality of freight and passenger service which will please the company's patrons. In short, internal conditions on the railroad—physically as well as in the quality and effective deployment of people—have got to be sound before the company has anything solid to work with in making fast friends of the influential public. But, given healthy conditions and a modern plant and modern service, then skilled public relations people can be confidently expected to produce results which will be gratifying.

Mr. DeButts' ideas on passenger service are no less definite than those he has on freight service. "What we need," he says, "is fewer and better passenger trains. These anemic local passenger trains which nobody rides

and which are losing us barrels of money have got to come off. It is in the long-run public interest that this loss be stopped. And, as this waste is eliminated, we should constantly improve the trains that people in remunerative numbers really want to ride. What we should concentrate on is comfort, convenience, good food and a good night's sleep at a reasonable price."

With this formula he believes passenger service can be made, if not highly remunerative, at least a non-losing service as far as actual out-of-pocket cost is concerned; and a substantial contributor to goodwill for the company and to the development and prosperity of the territory it serves.

"There is no way you can lose or pick up freight customers so fast as by the quality of passenger service you provide," Mr. DeButts asserts. He is not an advocate of speed attained at the sacrifice of comfort—there's no use in trying to compete with the plane in the area of its inherent superiority; better do the competing in the area of the railroad's inherent advantages. But all progress in this department hinges on getting rid of the money-wasting local services that are dead to any possible hope of profitable revival.

Faith in Employees

The new president has deep faith in the essential loyalty and goodwill of the vast majority of the rank-and-file of the company's employees; and has thousands of contacts with them in person and by correspondence which justify his conviction. Quite the contrary from deploring the interest which employees have in the unions of which they are members, he is happy to note such interest; and believes that sound unionism, like sound government, comes from active participation by responsible members.

Mr. Norris requested retirement under a rule which he himself instituted. He will be 70 years of age on January 21, 1952. Born at Hoopeston, Ill., he was educated in the public schools and entered railroad service in 1900 as a telegraph operator on the Chicago & North Western at Arlington Heights, Ill. Not long after that he was a station agent and, before he was 20, was a train dispatcher. In July 1902, he went to the Southern as a car service agent and rose through positions of trainmaster, assistant superintendent and superintendent to general superintendent. After serving as operating vice-president and receiver of the Mobile & Ohio, he became vice-president in charge of operation of the Southern in 1933 and succeeded the late Fairfax Harrison as president in October 1937.

Mr. DeButts was born on October 13, 1895. His grandfathers on both sides of the family were members of Mosby's Rangers during the War Between the States. Grandfather Ashby was station agent at Delaplane and young Harry got his first indoctrination in railroading by spending his spare time at the station with his grandfather. The veteran Colonel Mosby used to visit his grandfather there, too, and the two old gentlemen used to live over their feats of arms, which interested young DeButts a great deal—but not as much as helping the local crew unload freight did; because, for the latter exercise, Harry and his friends occasionally were rewarded by a free ride in a box car to the next town. The five-mile walk back was small price to pay for such fun.

Wanted to Be a Conductor

In those days Master Harry wanted to be a conductor, but when in 1916 he was graduated in civil engineering from Virginia Military Institute—where Stonewall Jackson once taught and which has nurtured many famous soldiers, including General George C. Marshall—the market on the Southern was a little better for apprentice roadway engineers than for fledgling freight conductors—so engineering was the route he took. After a brief apprenticeship, he was entrusted with a section foreman's job, and then got to be a roadway yard foreman. He enlisted as a private in the Marine Corps in June 1918, and was quickly promoted when his V.M.I. background became evident, being discharged a year later as a first lieutenant.

He returned to the railroad as assistant track supervisor and served successively thereafter as supervisor, assistant trainmaster, trainmaster, assistant superintendent, superintendent, general superintendent and general manager, until his selection as operating vice-president in 1937. "I didn't miss a single rung of the ladder," he explains.

The origin of the DeButts family in Virginia goes much further back than the 1860's—back, at least, to a Dr. Samuel DeButts who came first to Maryland from County Sligo, Ireland, in 1790. Be his roots ever so deep in Dixie, however, the Southern's new president, like his predecessor in office, is more interested in what lies ahead than in what is past. And he expects and hopes his contemporaries will judge him on his qualifications and performance as a railroad man, rather than as a Virginian who still inhabits his ancestral domain. Such considerations aside, however, it can scarcely be considered a handicap in a chief railroad executive to have a background of family and upbringing which so thoroughly identifies him with the sentimental attachments of the territory his company serves; and which gives him so much native insight into the way of thinking of the people to whose service the Southern Railway Company is dedicated.

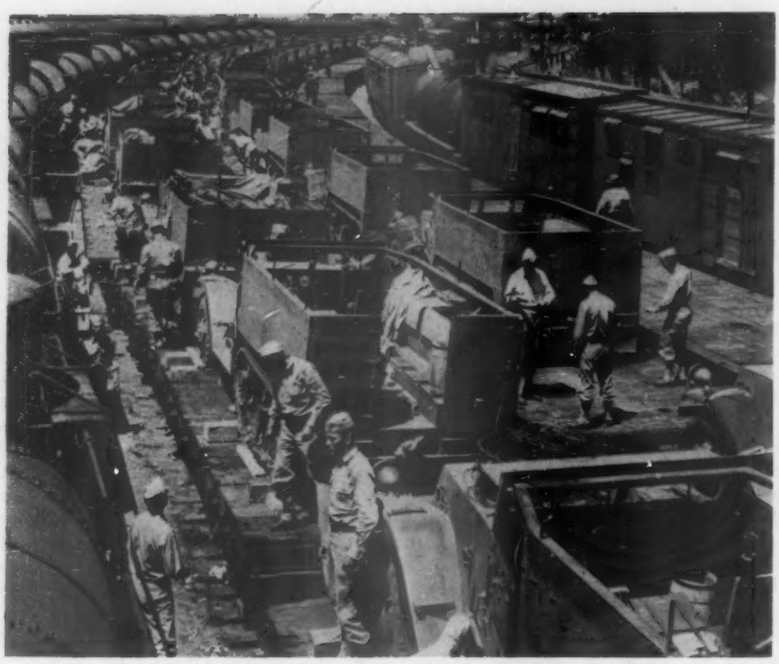
"IN THE SCRAP"

Railroad contributions to recovery of iron and steel scrap are expected to run over 400,000 tons a month for the next few months, the Defense Transport Administration announced last week, on the basis of a letter from President William T. Faricy of the A.A.R.

Speaking for both the A.A.R. and the American Short Line Railroad Association, Mr. Faricy told D.T.A. that October scrap shipments by railroads included more than 325,000 tons of normal scrap and more than 100,000 tons of "dormant" scrap.

The letter was addressed to D.T.A. Administrator James K. Knudson, chairman of the Transportation Committee for Scrap Recovery. Mr. Faricy said recovery and shipment of dormant scrap by railroads will continue at about the October volume for the next several months.

"I can assure you the railroads are taking every advantage of the liberalized policy of scrapping obsolete and worn-out steam locomotives and am confident they will cooperate wholeheartedly in every way they can to provide the maximum amount of scrap," Mr. Faricy said.



TO THE COMPLEX TASK of meeting military demands in World War II, the Southern Pacific went "All Out!"

A. T. Mercier's successor —Donald J. Russell—will be the youngest president in Southern Pacific history

The S.P.'s Wartime Chief Steps Down

Having guided the wide-reaching operations of the Southern Pacific through a period of phenomenal wartime traffic (1941-1945) and a period of unprecedented investment in new plant (1946-1951), Armand T. Mercier retires from its presidency on December 31. Although the company's announcements state that his retirement will "close" his 48-year career with the S.P., Mr. Mercier will continue to exercise his active interest in the company as a member of its board of directors.

Donald J. Russell, who assumes Mr. Mercier's presidential duties on January 1, is, like Mr. Mercier, a lifetime Southern Pacific railroader. Taking over the leadership of this pioneer railroad at the age of 51, he becomes the youngest president in the road's long and epochal history.

The nation was still stunned by the disaster at Pearl Harbor when, on December 11, 1941, Mr. Mercier stepped into the presidency following the death of his predecessor, Angus D. McDonald. The bulk of wartime demands was yet to come and already the largely single-track railroad was moving the greatest volume of traffic in its history. To a great extent increased peacetime traffic had been anticipated, for in the years 1936 to 1940 the company had spent more than $88 million for road and equipment and large additional purchases were made in 1941. But even Mr. Mercier could not have then foreseen the unparalleled strategic position that 13,000 miles of Southern Pacific lines were to occupy later in relation to the nation's Pacific war effort.

When the traffic climax was reached in 1944—the fifth year of the defense and war period — net ton-miles of freight were nearly three times those of 1939 and passenger-miles were up five-fold. All of this added traffic was handled without prolonged delay or any widespread congestion. Mr. Mercier stated at the end of 1944 that this was achieved through "first-rate cooperation from the military and other government agencies and from commercial shippers; and by effective teamwork with other railroads and within the Southern Pacific organization."

But the president of a competing railroad once put it in a different manner. He said: "The Southern Pacific — more, perhaps, than any other railroad — gave itself completely to the armed forces — so completely, in fact, that it may have alienated for a time some of the good will of less conscientious commercial customers."

"In short," he said, "during war a railroad cannot serve two masters. And the Southern Pacific chose to serve the armed forces—*all out!*"

Keenly conscious of the effect this "all out" service would have on its civilian and commercial traffic in the postwar era, Mr. Mercier initiated an employee and public relations program coordinated to boost employee morale at the same time it boosted employee relations with the shipping and traveling public. To the employee who devoted long, wearying hours in faithful performance of his duties the program afforded sympathy with posters such as one reading, "Sure, we're having a tough time—*but so is the public.*" To the public, the railroad poked lighthearted fun at itself while explaining the necessity of using out-dated equipment on wartime passenger trains. As a result the public — the railroad's

first master — took the inconveniences of its subordination to the second master — the military — without undue hard feelings.

Impovements to the railroad's plant in the postwar period indicated clearly just how anxious the railroad was again to become the servant of its first master. To the general public it was evident in gleaming new "Shasta Daylights," "Golden States," "Cascades," "City of San Franciscos" and the more-recently inaugurated "Sunset Limiteds"—many millions of dollars invested in faith in the future of the passenger business.

Other phases of the improvement program, though not so evident to the general public, were equally extensive. Nearly 500 new diesel locomotive units and close to 30,000 new freight cars were ordered. Currently, almost $5.8 million is being spent on new yard facilities at Roseville, Cal., and there have been countless smaller undertakings such as new industrial trackage, grade crossing protection, signaling improvements, etc., too numerous even for summary here.

Whether Mr. Russell will have to bring the railroad through another era of "all out" military service because of a new "crisis" is a question that nobody at this time can answer. Should that dreaded possibility materialize, however, experience gained during World War II plus the many postwar physical improvements wrought under Mr. Mercier's leadership will enable the S.P. organization to deliver an even greater "punch" that it gave before.

Because he was elected vice-president simultaneously with Mr. Mercier's assumption of the presidency in December 1941, Mr. Russell will be able to retain in the organization the experiences of its top management during both "eras" of Mr. Mercier's tenure of office. He came to the S.P. at the age of 20 after having completed his schooling at Stanford University in 1920. His first job was that of timekeeper for a maintenance-of-way gang on the Sacramento division; he advanced quickly to the positions of instrumentman and assistant engineer.

He Supervised Construction

From June 1923 to March 1926 as engineer in charge of second track construction between Emigrant Gap, Cal., and Truckee, Mr. Russell was given jurisdiction and supervision over all construction details, tunnels, bridges, snowsheds and grading of track. From March 1926 to June 1927 he was in charge of the rehabilitation of the road's Natron cut-off line between Grass Lake, Cal., and Kirk, Ore., including the construction of new terminal facilities at Klamath Falls and Crescent Lake. Subsequently he became roadmaster on the Portland division, then assistant trainmaster (September 1928), trainmaster (June 1929) and finally assistant superintendent, in September 1934.

Three years later he left the Portland division to go to San Francisco as assistant to the general manager—a position which he held until he was named superintendent of the Los Angeles division in 1939. In July 1941 he returned to San Francisco as assistant to the president, holding this title only until December when he was elected vice-president. In August 1943 he was elected also a director of the Southern Pacific Company. His election as executive vice-president came in February 1951.

Mr. Russell is also a director and member of the executive committee of the Southern Pacific Company of Mexico; president and director of the Northwestern Pacific, the San Diego & Arizona Eastern and the Petaluma & Santa Rosa; a director of the St. Louis Southwestern and a member of the council of administration and council of consultation and vice-president of the Tijuana & Tecate. He becomes chairman of the Cotton Belt's board on January 1.

A. T. Mercier D. J. Russell

Mr. Mercier and Mr. Russell have closely parallel careers in that both were literally "born in engineering and raised on operations."

Mr. Mercier graduated from Tulane University in 1903 with the degree of Civil Engineer. (The university conferred the honorary degree of Doctor of Laws upon him October 24, 1945.) His first S.P. job began on January 1, 1904, when he went to work as a rodman at Los Angeles. During the succeeding two years he served on that division as transitman, roadmaster's clerk and gang foreman.

In March 1906 he was appointed assistant engineer and in that capacity he took an active part in the famous project — undertaken by the railroad at the request of President Theodore Roosevelt — to save the Imperial valley and the city of Yuma, Ariz., from Colorado river floodwaters.

Early in 1907 Mr. Mercier was named general foreman and engineer of bridges and buildings, in charge of steel bridge construction, with headquarters in Los Angeles. Later in the same year he was appointed engineer and general foreman of terminal construction work at San Pedro and Los Angeles.

One year later Mr. Mercier became assistant engineer on the resident engineer's staff at Los Angeles. In 1911 he was appointed office engineer of the road's Southern district; in 1912, division engineer of the San Joaquin division, and in 1913, division engineer of the Los Angeles division.

His operating experience began when he was appointed assistant superintendent of the Shasta division in 1917. One year later he became superintendent of the Portland division. Then he left the Southern Pacific proper in 1921 to take over the duties of general manager of the subsidiary San Diego & Arizona Eastern. He was made president and general manager of that road in 1927.

Two years later he was transferred to another S.P. subsidiary—the Pacific Electric (then the largest interurban electric railroad in the world) and until 1933 he remained with that company as its vice-president and general manager.

In 1933 he returned to the parent Southern Pacific as general manager and in 1938 he was elected vice-president in the executive department. With his election as president in 1941, he was also elected a director and a member of the company's executive committee.

Chicago will not soon forget the collision between a gasoline truck and a street car in 1950 which cremated 34 street car passengers. What would have happened if the truck had been laden with explosive aviation gasoline? With munitions?

"Boom Wagons" on Public Highways . . .

. . . Ignore Public Safety and Welfare to Save Pennies

A minor mystery and a storm of protest have followed the application of some 60 truckers for permanent authority to handle explosives and similar dangerous commodities, as in the so-called "Riss case."

The mystery is the reason behind the role of the Department of Defense—long an ardent advocate of strong railroads—as the sole supporter of the truckers' application. Witnesses for the department label the trucking of

Background Material

In granting certificates of public convenience and necessity to truck operators throughout the country, the Interstate Commerce Commission often has withheld authority to transport dangerous commodities—such as dynamite, munitions, poison gas, aviation gasoline, and the like—partly because of the inherent dangers in moving such products over public streets and highways, and partly because many truckers just were not interested in that kind of business. Some trucking concerns, however—including the wide-ranging Pacific Intermountain Express—have obtained unrestricted permanent rights to transport munitions and other dangerous commodities at will over any of their routes.

Recently about 60 truckers operating in the vicinity of ammunition depots and ordnance works have petitioned the I.C.C. to lift permanently the restrictions on their certificates, thus permitting them to handle munitions and similar dangerous commodities. These 60-odd cases have been grouped together, with much of the evidence consolidated and presented in hearings on the application of Riss & Co., the MC-200, Sub. 84 proceeding—commonly known as "the Riss case."

Munitions and similar dangerous commodities traditionally have moved by rail for all but local hauls. But the Department of Defense, long an advocate of strong railroads, has recently come up with an idea for "complete motor and rail service" so it can "shop" for the lowest price. The truckers, of course, are delighted and have been striving avidly to secure more of this business.

During World War II the railroads transported practically all munitions and similar dangerous shipments. Even so, there were cases where, for one reason or another, truck movement was considered essential. In those cases the necessary temporary permit was obtained in a matter of hours—sometimes minutes.

The fact that the majority of common and contract truckers did not have permanent authority to move munitions during the last war neither worked harm nor retarded essential movements. On the other hand, the temporary permit system alerted local policing agencies

This collision between two trucks in downtown St. Joseph, Mo., in November 1949 was quite commonplace—except that the larger truck was carrying poison gas. Fortunately none of the death-dealing gas escaped

military explosives on public highways "a military necessity," citing as reasons "need in times of emergency," and "a desire to save money." This is a complete reversal of outlook concerning the transportation of explosives since World War II, though under cross-examination the same witnesses were unable to find any fault or failure of railroad transportation of dangerous commodities.

Spontaneous opposition—spurred by the tremendous potential danger to public life and property resulting from promiscuous trucking of munitions—has shown itself in every corner of the country. Opponents include such influential groups as the American Automobile Association, the executive committee of the State Governors' Conference, five states, three cities, the American Association of State Highway Officials, the National Sheriffs' Association, as well as railroad labor unions and the railroads themselves.

In the face of all this opposition, surprisingly little has been said about the large volumes of munitions now moving by truck—and how truckers are doing it.

The Department of Defense sticks to a policy of buying munitions transport solely on *price*. Truckers, quick to see an advantage, have Washington representatives who swarm around Defense Department officials in quest of this business. These representatives bid on *attractive* movements—not all movements—at a rate approximately 1 cent per 100 lb. under published railroad rates. The railroads, bound as they are by tariff and I.C.C. requirements, cannot quote prices under their published tariff rates, so the truckers naturally are the low bidders. On this basis the savings to the Department of Defense on a 100-ton shipment of explosives amounts to only $20. Yet this shipment, divided among several trucks, could easily devastate two or three large cities.

As the result of this situation experienced observers

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to the imminent movement of dangerous commodities over specific routes, thereby enabling them to take precautionary measures.

Railroad movement of munitions and all other dangerous articles is now and always has been under constant and rigid control. There is no comparable policing of highway movements.

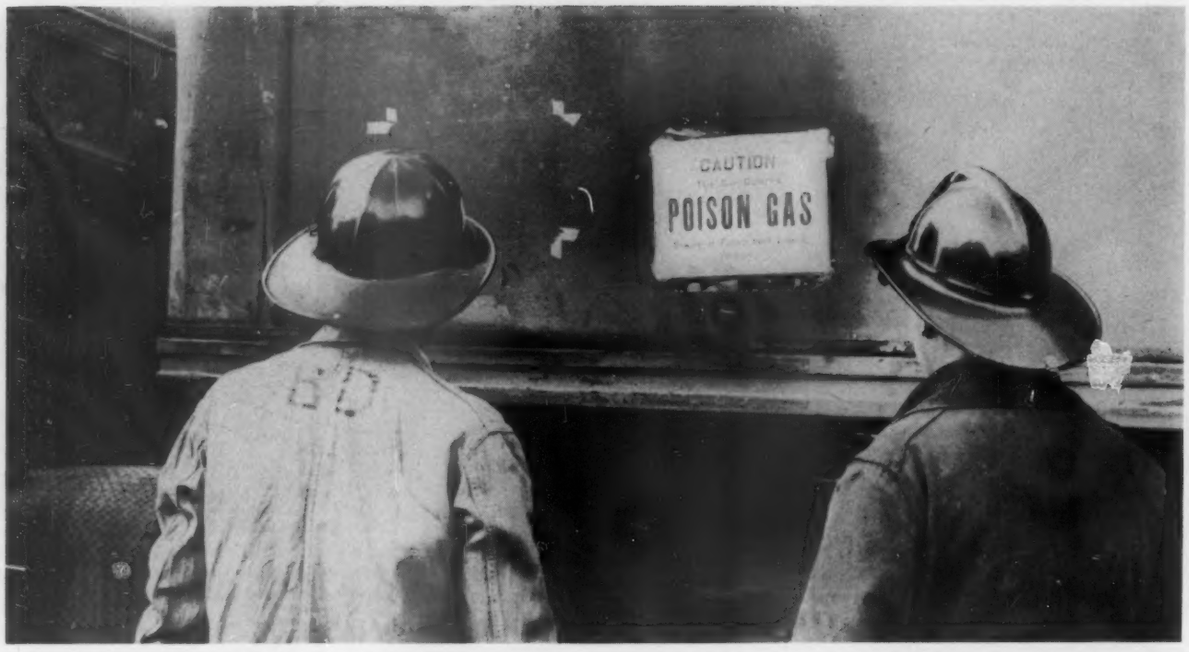
The key to the railroad system of supervision is the Association of American Railroads' Bureau of Explosives, which has, over a long period of years, studied and developed safe, efficient methods of packing and transporting explosives and other dangerous commodities. These are embodied in specifications and regulations which are closely followed and policed by the individual railroads. That they are policed rigidly and consistently is demonstrated by the railroads' safety record in war and peace.

By contrast, the policing of highway movements is, in actual practice, almost non-existent. No effective method has yet been found for policing such highway movements, other than by local police agencies. The Interstate Commerce Commission has endeavored to cope with the problem through the safety section of its Bureau of Motor Carriers. But even before congressional axes started trimming the I.C.C.'s annual appropriation, the safety division had only 27 men handling enforcement for the entire country. Hence, necessarily, coverage was pretty thin.

The railroads provide their own protective services—at their own expense.

It is standard railroad practice to isolate all explosive and similarly dangerous commodities in a separate, carefully labeled railroad car, regardless of the size of the shipment. In direct contrast, truckers can—and frequently do—mix dangerous articles with general cargo and handle them together in a single truck.

With the multitude of optional rail routes available, the railroads always endeavor to move large shipments of explosives over lines which avoid congested population and industrial centers. The railroads likewise have very rigid regulations concerning places where cars containing explosives may be "parked," and concerning constant guard for such "parked" cars.



Thoroughly alarmed as the result of this collision involving a truck load of poison gas, and foreseeing the dangers imminent if promiscuous trucking of the weapons of war is to be permitted, the city of St. Joseph is vigorously opposing the truckers' petition for permanent authority to haul munitions. Milwaukee and St. Louis also oppose the petition

believe more munitions are now moving by truck than ever before. It would be impossible to prove this statement—truckers don't keep or report commodity statistics—unless the Department of Defense sees fit to release its own figures. But there is plenty of circumstantial and indirect evidence.

How Do They Do It?

Temporary certificates are the key to this truck movement for all but those already possessing permanent authority. These temporary certificates are issued by the I.C.C. for only 180 days at a time, but there is no limit to the number of times they may be renewed. Likewise, truckers starting off with but limited temporary authority, may gradually extend it by steadily renewing existing certificates, and adding new ones. Riss & Co., the trucking concern whose case is prominent in the current hearings, has held such "temporary certificates" continuously for at least 8 years, and has gradually expanded them to include most of its routes.

The record is loaded with examples of the dangers present in trucking dangerous commodities. Collisions involving gasoline trucks—which generally lead to all-consuming fires—occur so often as to be almost commonplace. Chicago will not soon forget the collision between a street car and a gasoline truck in 1950 which cremated 34 street car passengers. What would have happened if the truck had been loaded with munitions? Or with poison gas?

Sabotage Possibilities

Trucking of explosives offers many opportunities for sabotage, as has been pointed out by several competent observers—including some Defense Department employees speaking privately and off-the-record. It would be no trick at all, they point out, for a subversive truck driver to spot his trailer load of munitions in a vital spot, light a fuse, and step out "for a cup of coffee."

Compounding the danger of sabotage is the widespread practice of "trip leasing," used by many truckers —including Riss & Co. Riss & Co. operates almost exclusively on a "trip leasing" basis, though it uses the formality of a 30-day lease. But there is nothing in that 30-day lease to prevent any trucker operating under it, when no return load is available, from leasing himself out to someone else for the return trip. Alarmed state officials ask, under these conditions, how would it be possible to maintain a security check against all who might handle a dangerous cargo?

Sabotage is an ever-present danger recognized by the railroads and carefully guarded against. Railroad employees are carefully screened, when the occasion demands, in cooperation with the Federal Bureau of Investigation. And the railroads maintain guards—at their own expense—at vital locations and around dangerous shipments.

Impressive Opposition

The list of local government and other organizations which have intervened in opposition to unrestricted trucking of munitions is impressive. The American Automobile Association has spearheaded the drive in opposition with its call for a "study of the necessity or justification for the transportation of explosives and other similar dangerous materials over the public highways and where such necessity or justification does not exist, such transportation be strictly limited." The A.A.A., recognizing the large unregulated movements now taking place, has also called for stricter control over existing trucking of explosives.

Five states—California, New Jersey, Colorado, Ohio and Pennsylvania—have asked permission to state their opposition to the plan because, as New Jersey put it, "any unnecessary hazard on the highways of this state, such as the trucking of explosives and ammunition,

Wide World Photos

These people are seeing for themselves what can happen to a heavily traveled highway when an explosives-laden truck catches fire and explodes. This was U.S. 41-A, near Nashville, Tenn. The hole, 15 ft. deep and 35 ft. long, was blasted in the road by a truckload of dynamite

is to be avoided wherever and whenever it is possible to do so." New Jersey added that "an explosion with resultant damage to our highways might seriously interfere with our state's financial situation should we be called upon to replace existing highways and bridges and not be able to recover the cost of replacement."

The financial responsibility of most truckers is somewhat limited. While the majority are honest and sincere enough in the settlement of routine damage and loss claims, very few—if any—have the financial backing or ability to pay adequate compensation for the damage which might be caused by an exploding truck of munitions.

State officials also point out that volume truck movements of dangerous articles often force the state to provide escort and guard protection. Of course, these man-hours don't cost the trucker a cent—but they are a big charge on the general taxpayer.

Three Cities Intervened

Three cities have intervened—Milwaukee, St. Joseph and St. Louis—for the same general reasons as the states, plus the added fact that it is often impossible for trucks to detour around some cities and towns because of their strategic location at river crossings and highway junctions. Highway bridges across large rivers usually begin or end in cities or towns.

Local police have their problems in trying to cope with the situation. Some cities have local ordinances requiring that trucks carrying dangerous articles be escorted through town by a police officer over a prescribed route.

At least one such city — Omaha — is complaining that this escort service requires so much time and so many men that local police have been forced to neglect other important traffic and patrol work. The cost of this—and similar protective measures employed by other cities and by some states—must be borne by the general taxpayer. And local police point out there is nothing to prevent a truck driver from removing the distinctive "explosive" or other warning signs from his truck at the city or state limits and driving right through.

Railroad Opposition

The railroads have intervened for the very sensible reason that they don't want to lose the business, and because they are ready and able to perform *all* the service necessary—not just the "plum" movement. Their routing and transit precautions offered to movement on private rights-of-way, cannot be approached by the trucking industry. And the railroads provide the protective services at their own expense.

The Department of Defense has pleaded that it needs the munitions trucking service to save money. The truckers are engaging in the usual practice of simply setting their price a shade under publicly quoted railroad rates, a situation which the railroads can never hope to overcome as long as regulation of trucks and railroads remains on the present basis. The railroads contend there has been no proof of any substantial or fundamental saving through the use of trucks as contrasted with railroads.

There is evidence that not all truckers are happy about this business of hauling munitions. There are some who firmly believe that this is a type of business which common carrier and contract truckers should avoid because it carries responsibilities larger than the average trucker can safely assume, and because when accidents involving such shipments do happen—as they inevitably will—they will have a strong adverse effect on public opinion with respect to the entire trucking industry. It is even rumored that the conservative truckers are so alarmed at the exposure of facts in the "Riss case" and the unfavorable publicity it has brought the trucking industry, that they are considering entering the case in opposition to the petitioners.

ALREADY IN SERVICE, the $450,000 express building has a floor area of approximately 25,000 sq. ft., all at car-floor level. Its three car-loading platforms are canopy-covered, each of the platforms being 20 feet wide and approximately 380 feet long

DETAIL OF CANOPY AND PLATFORM shows how canopy extends partially over the tracks. Most of the terminal's tracks are ballasted with shell dredged from nearby Lake Pontchartrain. Roof of the express terminal is barely visible between first two canopy support columns on the right

PROGRESS AT NEW ORLEANS

It was late in 1949 that Mayor DeLesseps S. Morrison of New Orleans declared, "We are entirely in the clear on the new union station with nothing in the way. There are no pending lawsuits; the construction fund is in the bank; and it's simply a matter of engineering and construction from now on."

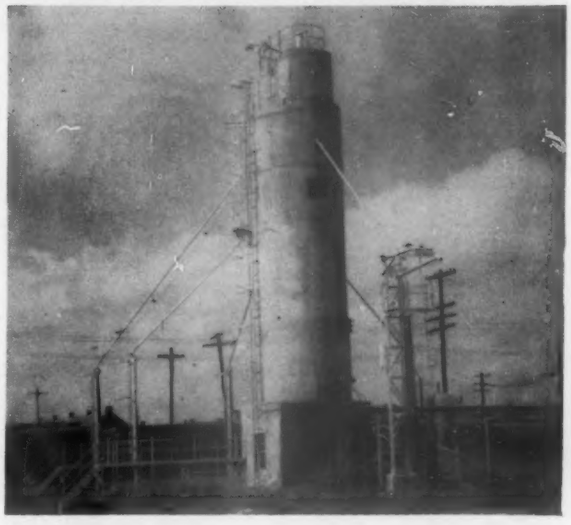
DIESEL SHOP BUILDING, to be used for running repairs only, is constructed of "Transite" and wire glass applied over a steel frame. Four inspection pits will each accommodate two diesel-electric units. To eliminate fire hazard a separate building was built for oil-storage

BUTTERFLY CANOPIES FOR THE PASSENGER PLATFORMS cover six reinforced concrete track-level platforms, each 20 feet wide. There are 12 station tracks with capacities ranging from 10 to 20 cars. Contract has been let for station building, which will occupy much of the area in foreground

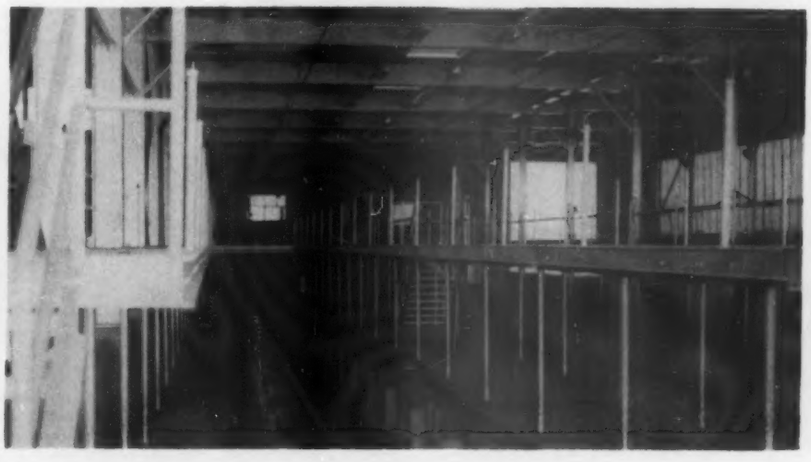
Today, although much work remains to be done, the rapid pace of engineering and construction on this near-$50 million project is evident in many completed and near-completed structures along the property. While materials shortages are expected to hamper completion of remaining units—particularly some of the 27 proposed grade separations—it appears highly unlikely that they can prevent use of the terminal by the city's eight passenger-carrying railroads at a relatively early date.

These pictures show the terminal as it appeared in October. They were taken by a *Railway Age* reporter during an inspection arranged and conducted by Terminal Manager and Chief Engineer C. J. Wallace. We are indebted to Mr. Wallace for much of the accompanying material.

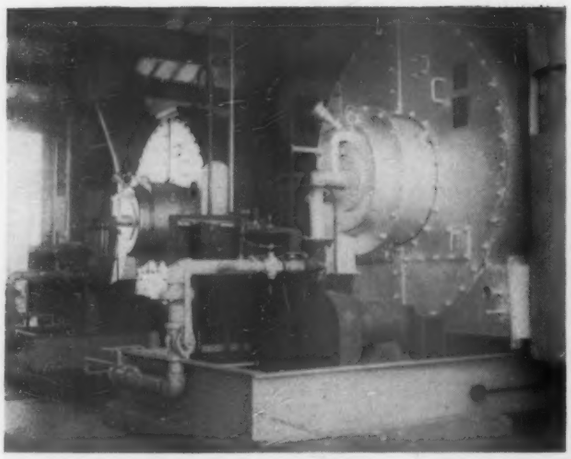
Additional pictures appear on the following page.



SAND TOWER is built of reinforced concrete. Characteristic of all buildings in the terminal project is that catwalks, piping and other exposed metalwork are covered with aluminum paint. Since the tower is not yet in use, no effort has been made to clear the area of weeds



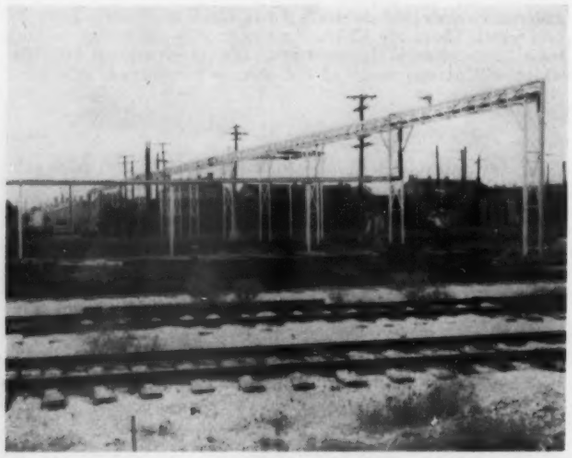
INSPECTION PIT RAILS ARE raised on spaced concrete supports which permit entrance and exit along the sides as well as at the ends. Temporarily, the machine shop and storerooms in the back of the building are being utilized by the Pullman Company



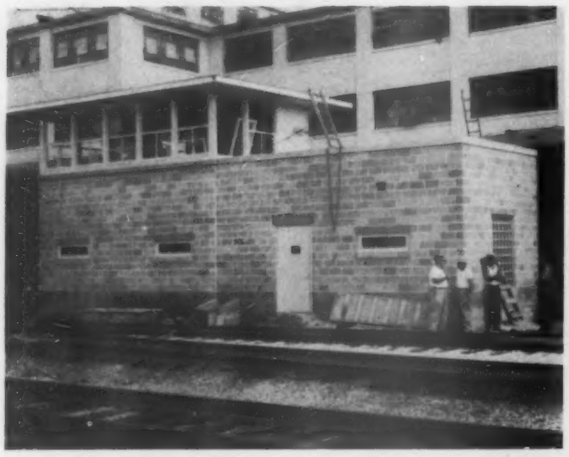
STEAM HEAT is furnished by these two 200-hp. Cleaver-Brooks package boilers with fully automatic gas operation

COMPRESSED AIR is provided by two air compressors, driven by Westinghouse motors

BOILER PLANT serves both the coach yard and the engine facilities zone with steam and compressed air. City water is used. The building was prefabricated of aluminum by the Butler Manufacturing Company



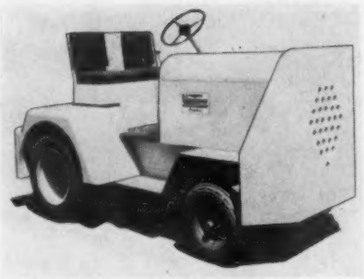
STEAM, WATER AND COMPRESSED AIR LINES are carried over yard tracks on this steel structure, thereby reducing construction and maintenance costs. Normal water table is nearly at ground level



INTERLOCKING TOWER at five-track main approach throat will control three cross ladders. The terminal's signal and interlocking system is being installed by the General Railway Signal Company

TWO OF THE MAIN APPROACH TRACKS are used temporarily by the Illinois Central for access to its own terminal. All main tracks are being laid with 110-lb. rail except turnouts, crossings, etc., which are 115-lb.

New and Improved Products of the Manufacturers



Model 50 "Unitow" Tractor

A towing tractor with a drawbar pull of 5,000 lb. was announced recently by Hensel Green & Co., Chicago 6. The Model 50 "Unitow" is 102 in. long, 65 in. wide, and 66 in. high. Turning radius is said to be 118 in. Weight is approximately 6,700 lb. It is powered by an International Silver Diamond 220, six-cylinder, valve-in-head engine. Four forward speeds, varying from 3 to 19 m.p.h., are provided. Reverse speed is 2-½ m.p.h.

Low Resistance Ohmmeter

The most recent addition to the Megger family of electrical resistance measuring instruments, made by James G. Biddle Company, Philadelphia, is a low-resistance ohmmeter designed for maximum convenience in field use. The housing for the set includes a compartment for storing leads and hand spikes. It is supplied in two models, both having the same ranges of 0 to 1,000, and 0 to 10,000 microhms.

Model 1-B is a battery-powered set which employs two Burgess 4 FH dry cells, or equivalent. Model 1-R has a built-in rectifier which can be plugged into any ordinary lighting circuit outlet. The complete units, with batteries or rectifiers, weigh about 19 lb.

The ranges of the instrument cover a wide variety of applications, such as routine tests on circuit-breaker contacts, relays, switches, bonds, connections and joints, and barto-bar tests on commutator type armatures. The maker states that the ruggedness, compactness, and dependability of the set make it particularly applicable to power system and railroad use. No special training or experience is required for its operation.

Protection of Underground Pipe

A heavy-duty plastic electrical tape, designed for applications where more than average mechanical strength is needed, has been announced by the Minnesota Mining & Manufacturing Co., St. Paul, Minn. Designated Scotch Brand Electrical Tape No. 21, it is recommended for anticorrosion protection for pipes, cables and equipment laid underground where resistance to cuts and abrasion by rocks during back-fill is important.

It is also recommended for protecting and insulating cable and high tension leads subject to wear, abrasion and rough handling, and for bus bars carrying high voltage.

The tape has a black, vinyl plastic backing 20 mils thick; more than twice the thickness of previous tapes of its type. It has a dielectric strength of 22,500 volts, an insulation resistance of 200,000 megohms, and an electrolytic corrosion factor of 1.0. The tape is available in 36-yd. rolls ranging in widths from ¼-in. to 16 in.

This new "safety scoreboard," 20 in. by 30 in., intended for both indoor and outdoor use, has been announced by the Industrial Products Company, Philadelphia 33. Made of 20-gage metal, with baked enamel finish in green with white letters, the board features two blackboard panels on which the safety "score" may be kept up to date with chalk

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Low-Cost Tractor Cab

A new all-weather cab assembly for the Mercury line of heavy-duty gasoline tractors—designed for quick installation in the field—is announced by the Mercury Manufacturing Company, Chicago.

Features include: A 40-in. by 16-in. shatterproof windshield of safety glass, an electric windshield wiper, roll-down canvas curtains, celluloid side and back windows, and a 12-gage all-steel body. Shipped knocked-down, the cab can be assembled by two men in approximately two hours. Twenty-four bolts secure the cab unit to the tractor frame.

GENERAL NEWS

Fast Amortization Ban Affirmed by the I.C.C.

Affirming a determination by its Division 1, the Interstate Commerce Commission has issued a report and order prescribing accounting regulations under which railroad reports to the commission will no longer reflect accelerated amortization of equipment and facilities acquired to handle defense-traffic loads.

The decision, dated December 21, was in the No. 30920 proceeding; and the policy will apply to all carriers subject to commission jurisdiction. It will become effective January 1, 1952, and will require a restatement of railroad accounts to eliminate accelerated amortization with respect to facilities acquired since December 31, 1949. (*Railway Age*, September 3, page 38).

The policy will require normal depreciation charges on equipment and facilities—"unless it can be shown definitely" that they "will have no use in transportation service after the emergency." Account 270½, Road—Amortization of Defense Projects, and Account 331½, Equipment—Amortization of Defense Projects, will be cancelled; and charges to those accounts with respect to facilities acquired since December 31, 1949, will be reversed.

While the commission's action will not end accelerated-amortization accounting for income-tax purposes, railroads which opposed it expressed fears that it might make more difficult the obtaining of the required certificates of necessity from the Defense Production Administration. Their "principal" concern, however, according to the commission's report, was that the result would be a "showing of 'unrealistic earnings' and 'unwarranted misunderstanding by the public,' which would lead to false hopes of stockholders and prospective investors and 'inequities in respect of state tax liabilities, sinking fund payments, etc.'" (*Railway Age*, October 8, page 32, and October 29, page 14.)

The commission, so it said, was "unable to give controlling weight to the expressed fears." It added that it does not consider it a "'proper function" of accounting "to provide a safeguard against such contingencies."

Figures in the report indicated that, if accelerated amortization accounting were allowed to continue, the 1952 amortization charge "would be in the neighborhood of $200 million, which is about $160 million in excess of the charges which would be included in operating expenses at normal depreciation rates."

"This excess," the commission added, "is equivalent to 15 per cent of aggregate net railway operating income in 1950 and 20 per cent of the total net income in that year. The income figures of the coming four or five years would have little meaning if such an item were to enter into their determination, and the complications already encountered in a number of our proceedings involving comprehensive consideration of railroad earnings would be increased."

The opposing railroad group included 90 Class I roads and 31 roads of other classes. Six roads supported the commission, "expressing the general belief that normal depreciation rather than accelerated amortization is proper for accounting purposes," as the report put it. The six were: Pennsylvania; Chicago, Rock Island & Pacific; Chicago Great Western; Minneapolis, St. Paul & Sault Ste. Marie; Missouri-Kansas-Texas; and M. K. T. of Texas.

Another group of four roads proposed that the amortization accounts be left in the classification, but that a "tax-equalization" account be added. The latter would be used to spread the recording of the tax savings over the entire service life of facilities, involved. This four road group included the Chesapeake & Ohio; Chicago & North Western; Chicago, St. Paul, Minneapolis & Omaha; and Seaboard Air Line. The commission rejected their proposal.

Other parties to the proceeding included the Secretary of Agriculture and the National Coal Association. They urged the commission to affirm Division 1's determination.

Mediation Breaks Down In Engineers' Dispute

Mediation proceedings in the wage and rules dispute involving demands of the Brotherhood of Locomotive Engineers ended on December 20. The proceedings were a mediatory undertaking of the National Mediation Board.

Meanwhile, N.M.B. referred to President Truman a B. of L.E. request for appointment of an emergency board. (*Railway Age* of December 10, page 11.) No Presidential action on the request had been taken when this issue went to press.

FOUR PAKISTANI RAILROADERS, in Canada on United Nations fellowships, during a recent visit to the Canadian Pacific's Weston repair shops in Winnipeg. Left to right, in the photograph, are: K. S. Hassan, divisional operating officer, Quetta division, North Western Railway; E. G. Bowie, superintendent for motive power and car department department for the C. P. in the west; M. A. Aziz, works manager, Lahore main shops, N.W.; M. Rashid, district mechanical engineer, Pahartali district, East Bengal Railway; H. Khan, general mechanical engineer at Lahore for the N.W.; L. Lenoski, assistant Weston works manager for the C.P.; and William Douglas, Weston works manager

SUPPLY TRADE

Fred L. Nonnenmacher has been named manager of Chicago district sales of the **American Steel & Wire Co.,** subsidiary of U.S. Steel, succeeding **E. A. Murray,** resigned. Taking Mr. Nonnenmacher's place as manager of the manufacturers' products sales department in Chicago is **S. W. Goodenough,** while **R. H. Hauger** succeeds Mr. Goodenough as assistant manager of manufacturers' products sales, in Chicago. Mr. Nonnenmacher started working for American Steel & Wire as an office boy in the mailing department in New York. He held a number of positions in that office and was named manager of manufacturers' products in New York in 1948. In 1949 he was transferred to Chicago with the same position.

Harry F. Brown, electrical engineer of the New York, New Haven & Hartford, who is voluntarily retiring from the railroad at the end of the

year, will be engaged as consulting engineer for the **Westinghouse Electric International Company,** effective January 1, 1952.

G. B. Davis, formerly sales manager of the **Baker-Raulang Company,** has been elected vice-president in charge of sales, to replace **John R. Morrill,** recently resigned.

The **Farrel-Birmingham Company,** Ansonia, Conn., has acquired the common stock of the **Consolidated Machine Tool Corporation,** Rochester, N. Y., part of the consideration being Farrel-Birmingham securities. The Consolidated plant will be operated as a subsidiary of Farrel-Birmingham and will continue production of its machine tool lines. **Arthur H. Ingle** will remain as president of Consolidated and will be a director of Farrel-Birmingham.

Harold C. Steadman, general manager of the **Taylor Fibre Company,** has been elected vice-president.

A three-for-one split of the common capital stock of **Olin Industries, Inc.,** has been approved by the corporation's stockholders. The consolidation of the assets of **Frost Lumber Industries, Inc.,** Shreveport, La., with Olin, also has been approved. Frost Lumber Industries, with timberlands, sawmills, railroads, and oil and gas properties in Louisiana, Arkansas and Texas will continue operations under its present management as a division of Olin. The transaction, which involves four railroads, must receive approval of the Interstate Commerce Commission. (See Financial column)

OBITUARY

Howard Mull, vice-president of sales at Chicago of the Warren Tool Corporation, Warren, Ohio, died on December 22.

Hilbert P. Schremp, 54, general traffic manager of the Aluminum Company of Canada, and also freight traffic manager of the Alma & Jonquieres and the Roberval & Saguenay, two railroads which are subsidiaries of the Aluminium Company of Canada, died on December 22.

EQUIPMENT AND SUPPLIES

MARINE

The **Pennsylvania** has ordered 10 steel lighters from the American Bridge Company at a cost of $424,000. The 80 ft. by 30 ft. vessels, for use in New York harbor, will be built at Trenton, N. J., and will replace chartered lighters. Deliveries will begin late in 1952; when they are completed the P.R.R. will be operating 58 steel barges in the harbor.

LOCOMOTIVES

General Electric Company has been awarded a contract to build three more diesel-electric locomotives for the Transportation Corps. G.E.'s bid of $19,835 each, F.O.B. Erie, Pa., was lowest of five submitted. These are 25-ton locomotives, for use by the Air Forces. The first one is scheduled for delivery in April 1952, and the remaining two in June 1952.

As noted in *Railway Age* of December 24, page 44, G. E. was recently awarded a contract to build fourteen 44-ton diesel-electrics for the Transportation Corps.

FINANCIAL

Southern Pacific of Mexico Sold to Government

The Southern Pacific of Mexico, a wholly owned subsidiary of the Southern Pacific, has sold its physical properties to the Mexican government for $12,000,000. Of the purchase price, $3,000,000 was paid in cash and $9,000,000 in Mexican government 3½ per cent bonds maturing serially in 15 years. The properties were turned over to the government at 11:59 p.m. on December 21. By terms of the sale the Mexican government acquired 1,227 mi. of railroad serving the territory along the west coast of Mexico between Nogales on the Arizona border and Guadalajara in the state of Jalisco.

The purchase is understood to have been consummated through the National of Mexico, which will operate the line in future. The bonds issued for the sale have been designated as Southern Pacific Railroad of Mexico bonds, and are intended for sale outside of Mexico.

Olin Industries. — *Acquisition.* —This firm has asked the I.C.C. for authority to acquire control of four short rail lines. Olin is acquiring Frost Lumber Industries, a Missouri corporation, and the four railroads are controlled directly or indirectly by Frost subsidiaries. The roads are: Arkansas & Louisiana Missouri, 52.5 miles between Monroe, La., and Crossett, Ark.; Mansfield Railway & Transportation Co., 3.4 miles between Mansfield, La., and Oak Hill; Louisiana & Pine Bluff, 1.8 miles, between Huttig, Ark., and Dollar Junction; and Nacogdoches & South Eastern, 14 miles, between Nacogdoches, Tex., and Woden.

Investment Publications

[The surveys listed herein are for the most part prepared by financial houses for the information of their customers. Knowing that many such surveys contain valuable information, *Railway Age* lists them as a service to its readers, but assumes no responsibility for facts or opinions which they may contain bearing upon the attractiveness of specific securities.]

Fahnestock & Co., 65 Broadway, New York 6.
Illinois Central Railroad. Weekly Review, November 26.

H. Hentz & Co., 60 Beaver st., New York 4.
An Analysis of Atchison, Topeka & Sante Fe. December 3.

Kerr & Co., General Petroleum bldg., Los Angeles 17.
Atchison, Topeka & Santa Fe. November 26, No. 1008.

Jas. H. Oliphant & Co., 61 Broadway, New York 6.
Northern Pacific Ry. Recent Oil Developments. Oliphant's Studies in Securities, No. 240, December.

Smith, Barney & Co., 14 Wall st., New York 5.
New York, Chicago & St. Louis Railroad Company, 6% Cumulative Preferred Stock. Railroad Bulletin No. 74, November 23.

RAILWAY OFFICERS

EXECUTIVE

Quin K. Baker Heads Quanah, Acme & Pacific

Upon his retirement as president of the Quanah, Acme & Pacific on December 31, Charles H. Sommer is succeeded by Quin K. Baker, vice-president, treasurer and general manager of the 119-mi. Texas short line (a subsidiary of the St. Louis-San Francisco). W. L. Richardson, vice-president—traffic, has been elected executive vice-president to succeed Mr. Baker. Mr. Baker will maintain his headquarters at Quanah, Texas, as will Mr. Richardson. Mr. Sommer, who has been associated with the railroad for so many years that he has been dubbed "Mister Q. A. & P.," will continue to follow the affairs of the railroad as a director.

Mr. Baker, a native of Welda, Kan., entered railroad service as a chainman in the engineering department of the St. L.-S.F. following graduation as a civil engineer from Kansas University in 1916. After wartime military service in 1919 he returned to the Frisco as a transitman at Springfield, Mo. From 1920 to 1929 he was assistant engineer at Sapulpa, Okla., then being named roadmaster at Tulsa. In 1933 he was transferred to Ft. Scott, Kan., as division engineer and

between 1938 and 1943 served as assistant superintendent at that point. He was then appointed acting superintendent at Fort Smith, Ark., but within a year returned to his former post at Fort Scott. He came to the

Quin K. Baker

Quanah as vice-president and general manager in 1946.

Mr. Richardson was born in Houston, attended Port Arthur College and entered railroad service as a clerk for the Kansas City Southern in 1918. He joined the Q. A. & P. in 1927 as chief clerk to the vice-president and general manager, following service in several capacities on other railroads. Subsequently he became general agent, traffic manager and, ultimately, vice-president in charge of traffic.

W. L. Richardson

Mr. Sommer is a native of Galveston. His railroad career began at the age of 16 when, in 1895, he became an accounting department clerk with the Gulf, Colorado & Santa Fe. On July 1, 1900, he was appointed chief clerk—disbursements in the accounting department, a position he held until April 1905. During this period, incidentally, Mr. Sommer carried on a second career in the field of music, playing 1st violin and cello with the Galveston Symphony Society and later viola with the Houston Symphony orchestra.

Mr. Sommer next joined the Houston Belt & Terminal, a Santa Fe subsidiary, as assistant to the president and construction auditor. He left this position on October 1, 1906, to become vice-president of the Q.A.&P. Initially, he had supervision over construction of the line between Quanah and Paducah and later over its extension to Roaring Springs (opened in 1913). At that time it was planned to continue the line to the west, but wartime conditions made it necessary to suspend further construction, and it was not until June 1928 that the railroad was finally opened from Roaring Springs to Floydada. Surveys

Charles H. Sommer

have been made and plans are now in progress for an extension from Floydada to Lubbock, about 50 miles.

Mr. Sommer has been president of the Q.A.&P. since October 1925—and is thus one of America's senior railroad presidents. Under his leadership the Q.A.&P. has recently carried out an extensive rehabilitation program and has been completely dieselized. He is also a director of the American Short Line Railroad Association.

D. J. McGanney, assistant to president of the SOUTHERN PACIFIC at San Francisco, has been appointed vice-president, effective January 1. Mr. McGanney succeeds **D. J. Russell,** who will become president of the S. P. on January 1. A photograph and biography of Mr. McGanney were published in *Railway Age,* February 5, page 78.

D. W. Brosnan, general manager of the Central lines of the SOUTHERN SYSTEM at Knoxville, Tenn., has been elected vice-president — operation at Washington, D. C., effective January 1, to succeed **Harry A. DeButts,** who has been elected president of the road (*Railway Age,* December 3, page 98). Mr. Brosnan was born at Albany, Ga., on April 14, 1903, and was graduated from Georgia Institute of Technology (C.E. 1923). He served as resident engineer, Georgia State Highway Department, from 1923 to March 1926, entering railroad service on the latter date as assistant engineer in the maintenance of way department of the Southern at Macon, Ga. Mr. Brosnan subsequently held various engineering positions at Chattanooga, Tenn.; Cincinnati, and Somerset, Ky., and was trainmaster at Oakdale, Tenn., and Birmingham, Ala. In October

D. W. Brosnan

1938 he was appointed superintendent, which position he held successively at Selma, Ala.; Macon and Birmingham. He was appointed chief engineer maintenance of way and structures at Cincinnati in February 1946, and one year later became general manager of the Central lines at Knoxville.

OPERATING

W. E. Foran, assistant superintendent of the Grand Rapids division of the Pere Marquette district of the CHESAPEAKE & OHIO, has been appointed terminal superintendent at Chicago.

Paul E. Bickenbach has been appointed general superintendent of dinng service of the ILLINOIS CENTRAL, succeeding **Norvin L. Patterson,** who has been appointed executive general agent at Baton Rouge, La. **Thomas K. Russell** succeeds Mr. Bickenbach as superintendent of dining service. **Clifford J. Bueschel** has been appointed assistant superintendent of dining service, succeeding Mr. Russell. Headquarters of the latter position have been transferred from Fulton, Ky., to Chicago.

M. S. Smith, general superintendent transportation of the Central region of the PENNSYLVANIA, has been promoted to assistant general manager of that region at Pittsburgh, succeeding **J. L. Cranwell,** who has been named assistant vice-president of the Eastern region at New York. **G. C. Vaughan,** assistant superintendent of the Southwestern division, has been appointed superintendent of the Panhandle division at Pittsburgh, succeeding **B. W. Tyler, Jr.,** who has been transferred to the Pittsburgh division at Pittsburgh, to replace **J. D. Mor-**

You Can Cut this Tax on Both Ordinary and Excess Profits—98%

Eye Accidents Cost $160,000,000 in Lost Man Hours*

*Estimate. Does not include average cost of compensation which even for the low cost year of 1938 was $328.

In the entire plant operating picture, no high cost is more unnecessary yet easier to reduce than the tax exacted by industrial eye accidents. It can be cut 98%... thousands of dollars can be saved annually... trained workers can be kept producing steadily during this period of high production—when proper safety goggles are worn on all eye-hazardous jobs.

Your AO Safety Representative has the figures to prove that an AO Eye Protection Program (which can pay for itself in six months) is a good investment *any time*—particularly *today*.

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SAFETY PRODUCTS DIVISION

SOUTHBRIDGE, MASSACHUSETTS • BRANCHES IN PRINCIPAL CITIES

For additional information, use postcard on pages 67, 68

ris. J. E. Wrightsman, Jr., superintendent motive power-diesel, has been appointed superintendent of the Lake division at Cleveland, succeeding **E. L. Hofmann,** who replaces Mr. Smith as general superintendent transportation of the Central region at Pittsburgh. A photograph and biography of Mr. Smith were published in *Railway Age* June 4.

As reported in *Railway Age* December 24, **John A. Schwab,** assistant vice-president of the PENNSYLVANIA at New York, has been appointed general manager of the Eastern region at Philadelphia, succeeding **Harry L. Nancarrow,** who has been appointed assistant vice-president — operation, system, at Philadelphia. **John D. Morris,** superintendent of the Pittsburgh division, has been appointed asisstant general manager at Philadelphia, succeeding **A. J. Greenough,** who has been named general manager of the Central region at Pittsburgh. Photographs and biographies

John D. Morris

of Messrs. Schwab and Greenough were published in *Railway Age* June 4.

Mr. Morris was born at Sykesville, Md., on December 7, 1905, and was graduated from the University of Maryland (B.S. in C.E. 1926). He entered railroad service in June 1926 as rodman with the Pennsylvania and subsequently served as assistant supervisor track, supervisor track and division engineer. Mr. Morris was appointed superintendent of the Wilkes-Barre division in January 1942, transferring to the Panhandle division in January 1945 and to the Pittsburgh division in March 1948.

TRAFFIC

H. J. Sneath, assistant foreign freight agent of the CANADIAN NATIONAL, has been appointed foreign freight agent at Montreal, succeeding **John Gleeve,** who has retired after 41 years' service.

Ross H. Dinkins has been appointed district passenger agent of the FORT WORTH & DENVER, at Dallas, Tex., succeeding **Herb C. Wallace, Jr.,** promoted.

Felix E. Autrey has been appointed general freight agent of the TENNESSEE, ALABAMA & GEORGIA, at Chattanooga, Tenn. He will have supervision over rates, divisions and claims, succeeding **H. I. Power**

Henry W. Coffman, industrial agent of the NEW YORK CENTRAL at Chicago, has been appointed industrial manager for the Chicago area.

John L. Bickley, general passenger agent of the CANADIAN NATIONAL at Chicago, has been appointed to the newly created position of assistant passenger traffic manager at New York. Mr. Bickley began his career in 1921 as a clerk-stenographer with the C. N. at Cincinnati and later served as traveling passenger agent. He was named assistant to passenger traffic manager at Chicago in 1940 and became general passenger agent there in 1947.

Daniel F. Merriam, general freight agent of the NEW YORK, SUSQUEHANNA & WESTERN, has been appointed traffic manager, with headquarters as before at Paterson, N. J., succeeding **Edward J. Lillis,** whose death was reported in *Railway Age* December 10, page 86.

James R. Henderson, Jr., chief clerk in the traffic office of the UNION PACIFIC at New York, has been appointed general agent at Washington, D. C.

Harry L. Vizard, assistant general freight agent of the ERIE at Chicago, retired on December 31 because of ill health, after 40 years of service.

MECHANICAL

G. R. Weaver, master mechanic of the Maryland-Delmarva division of the PENNSYLVANIA at Wilmington, Del., has been appointed superintendent motive power—diesel of the Central region at Pittsburgh. **A. R. Marsh,** master mechanic of the Susquehanna division at Williamsport, succeeds Mr. Weaver at Wilmington. Mr. Weaver was born at Huntingdon, Pa., attended Juniata College for three years, and was graduated from Purdue University in 1931. He entered the employ of the Pennsylvania as a laborer on the Middle division in 1929. Following service as a car builder, foreman and assistant master mechanic, he was promoted to master mechanic on the Eastern division early in 1949, transferring to the Delmarva division on November 1, 1949.

C. A. Gammon, general car foreman of the Miller shops of the FLORIDA EAST COAST at St. Augustine, Fla., has been appointed to the newly created position of superintendent car department. The position of master car builder, from which **E. S. Smith** has retired (*Railway Age,* December 3), has been abolished. **O. R. Donoho** has been promoted to general car foreman, succeeding Mr. Gammon.

Mr. Gammon was born at Cedar Rapids, Iowa, on January 26, 1896, and entered railroad service with the New York, Chicago & St. Louis at Stony Island shops, Chicago, as stock clerk in the stores department. He later transferred to the mechanical department as wheel checker, air brake

C. A. Gammon

apprentice and A.A.R. checker. He was connected with the Illinois Central in the A.A.R. billing department at Chicago until November 17, 1917, when he joined the Louisville & Nashville at its South Louisville, Ky., shops. In November 1919 he became piece work inspector with the Ryan Car Company at Hegewische, Ill. Mr. Gammon was general car inspector of the Missouri Pacific prior to entering the service of the F. E. C. on August 1, 1925, in the same capacity. He was promoted to general car foreman of the Southern division at Miami on April 1, 1929, transferring to St. Augustine on July 1, 1931.

N. E. Weston, car foreman of the GREAT NORTHERN at Havre, Mont., has been named assistant master car builder at Spokane, Wash. **J. M. Hick,** general car foreman at Hillyard, Wash., has been transferred to St. Paul, Minn., as general car foreman. **N. E. Carlson,** assistant master car builder at St. Paul, has resigned to become assistant chief engineer for **American Car & Foundry Co.,** at New York (*Railway Age,* December 24, page 43.)

ENGINEERING AND SIGNALING

G. W. Rear, Jr., has been appointed general fire inspector of the SOUTHERN PACIFIC, at San Francisco, replacing the late **U. S. Attix.** Mr. Rear is succeeded by **R. J. Dettling,** who becomes assistant general fire inspector, also at San Francisco.

Here are the Reasons the Type "D"

DOES THE JOB—STAYS ON THE JOB

ADJUSTER SCREW NUT. Ground and polished main bearing . . . machined laminated teeth for long life.

ADJUSTER SCREW ADAPTER. Proportioned to provide adequate strength with minimum weight.

PISTON SPRING. Flat helical spring retains resilience and resists fatigue.

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Each of the simple, rugged operating parts in the Westinghouse Type "D" Slack Adjuster is designed to stand up under long, punishing service. The type "D" has the same fine engineering you find in Westinghouse Air Brakes . . . the same basic design principle that has been proved in many years of passenger service.

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for Freight Cars

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Brakes are Basic to Railroad Progress

for maximum Diesel Performance use Vanadium Steels and Irons

You can obtain the mechanical properties required for satisfactory operation and long service life of Diesel locomotives by using Vanadium steels and irons.

Vanadium steel forgings, as well as Vanadium iron castings, have been designed for the best balance of mechanical properties obtainable for the service required of each specific part.

Recommended steel and iron compositions are given in the accompanying list for a variety of parts, many of which have already established satisfactory service records. A choice of materials is shown in some instances, in recognition of preference and of those variations in design and type of service which govern the properties required.

The metallurgical engineers of the Vanadium Corporation of America realize that each part is an individual problem, and they are prepared to cooperate with you to the fullest extent in selecting the best material for each application.

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Write for Data Sheet giving details of composition, heat treatment and mechanical properties of Vanadium steels and irons for various Diesel applications.

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CHEMICALS AND METALS

PART	MATERIAL
	STEELS
AXLES	C-V steel
BRAKE RIGGING CASTINGS	Mn-V cast steel
CAMSHAFTS	Cr-V (AISI 6120) steel
COUPLERS	Mn-V cast steel
CRANKSHAFTS	Cr-Mo-V (4140+V) steel Ni-Cr-Mo-V (4340+V) steel Cr-V (6140) steel Cr-V (50T46) steel C-V (1045+V) steel
ENGINE BLOCK BASE	Mn-V plate steel
EQUALIZERS	Mn-V steel
GEARS	Cr-V (6145) steel
INJECTOR TIPS	Cr-V (6145) steel
PISTON PINS	Cr-V (AISI 6120) steel
ROCKER ARMS	Mn-V cast steel
ROCKER ARM BRACKETS	Mn-V cast steel
ROCKER ARM SHAFTS	Cr-V (AISI 6120) steel
SPRINGS	Cr-V (AISI 6150) steel Cr-Mo-V steel
TRUCK FRAMES	C-V cast steel Mn-V cast steel Ni-V cast steel
	IRONS
CYLINDER HEADS	Mo-V cast iron, Graphidox-treated*
CYLINDER LINERS	Cr-Mo-V cast iron, Graphidox-treated* Mn-V cast iron
EXHAUST MANIFOLDS	Mo-V cast iron Cr-Mo-V cast iron, Graphidox-treated*
PISTONS	Ni-Mo-V cast iron, Graphidox-treated* Mo-V cast iron, Graphidox-treated* Ni-Cr-Mo-V cast iron, Graphidox-treated*

**Graphidox is a graphitizing and deoxidizing alloy.*

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With 11,149 U·S·S COR-TEN

15,649 Union Pacific Box Cars built with U·S·S COR-TEN since 1937

1937— 700 Auto Box Cars..Built by Ryan Car Co. & Company Shops
1937—1900 Box Cars.....Built by Ryan Car Co. & Company Shops
1937— 50 Box Cars.....Built by Pullman Std. Car Mfg. Co.
1939—2000 Box Cars.....Built by Company Shops
1940—2000 Box Cars..Built by Mt. Vernon Car Co. & Company Shops
1941— 250 Auto Box Cars.....Built by Company Shops
1941— 749 Box Cars..Built by Mt. Vernon Car Co. & Company Shops
1946— 500 Auto Box Cars.....Built by Pullman Std. Car Mfg. Co.
1946—1000 Box Cars.....Built by Mt. Vernon Car Co.
1947— 500 Box Cars..Built by General American Transportation Corp.
1947— 500 Box Cars.....Built by Pullman Std. Car Mfg. Co.
1947—1000 Box Cars.....Built by Pullman Std. Car Mfg. Co.
1950—3500 Box Cars.....Built by Company Shops
1950—1000 Box Cars.....Built by American Car & Foundry Co.

box cars in service–

Union Pacific looks at past performance and orders *4,500 more!*

THE 1,000 50-TON box cars built last year by American Car & Foundry for the Union Pacific and the 3,500 cars built in the UP shops, are the thirteenth and fourteenth lots of COR-TEN box cars put into service by this railroad since 1937.

There is no question in the minds of Union Pacific management as to what this new equipment will do. They know from long experience.

At present, 7,649 of these COR-TEN cars have been in operation for ten years and longer. In that time they have consistently maintained a record for superior performance. Year after year, since the first units went into service, they have proved their ability to carry more payload, to reduce operating costs, to keep maintenance costs low. What's more, they have thoroughly demonstrated that lighter-weight construction with U·S·S COR-TEN involves no loss of stamina, serviceability or life.

Even under the heavier loading, longer hauls, increased speeds and more continuous service demands that freight equipment has had to meet in the last decade, these older COR-TEN cars have stood up magnificently. All of them are in service today.

Union Pacific engineers have also had ample opportunity to judge for themselves how well U·S·S COR-TEN lends itself to freight car construction on a production line basis. That's because most of the 15,649 Union Pacific COR-TEN cars have been built in their own shops. Here COR-TEN's workability and particularly its excellent and uniform welding properties have made it possible to set up fabricating and assembly procedures that can be depended upon to produce high quality results. The 3,500 lot of box cars produced in the Union Pacific shops in 1950-51 were turned out at the rate of 20 cars per day.

The experience of Union Pacific with COR-TEN-built equipment is typical. Other leading railroads, too, have added more and more COR-TEN freight cars to their lines. They, like Union Pacific, have based their preference for COR-TEN equipment on the economy and greater efficiency that COR-TEN cars have demonstrated in actual service. It is largely due to repeat orders from satisfied users that the total of COR-TEN cars now in service runs well over the 140,000 mark.

• • •

Our engineers will gladly show you how construction with COR-TEN can be applied to your designs, what it will cost, and the sound economic reasons that justify its use.

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NATIONAL

AAR (Proposed) Type F

AAR Type E

THERE is hardly a train make-up in the mighty fleets operating daily on rail lines serving the continent in which COUPLERS made by "NATIONAL" do not appear. Year around dependability, under all operating conditions, comes from our quality-controlled production and applied engineering skills.

Starting the year 1952 ~ get maximum service and required delivery by specifying "National" for maintenance, rebuilding and new car programs. A-4849

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AAR TYPE H TIGHTLOCK

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OTHER AUTOMATIC DESIGNS

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WAY AGE

LITERATURE and PAMPHLETS Offered by *Railway Age* Advertisers

Following is a compilation of literature and pamphlets offered *free-of-charge* by advertisers in the five December issues of *Railway Age* (and recent manufacturers' announcements). To receive the additional literature desired, merely circle the item number(s) on the card below.

615. Journal Box Visualizer
Hyatt Bearings Div. General Motors Corp. Simple plastic journal box visualizer shows ease of maintenance of Hyatt journal boxes.

616. Chilled Car Wheels
Association of Manufacturers of Chilled Car Wheels. Descriptive booklet "Gentlemen of the Jury" gives data on AMCCW chilled car wheels.

617. Circuit Breakers
Westinghouse Electric Corporation. Features of the Westinghouse P-1 circuit breaker described in booklet B-4081.

618. Wrought Iron
A. M. Byers Company. Booklet "THE ABC's OF WROUGHT IRON" gives accurate information on the properties and qualities of genuine wrought iron.

619. Weed and Brush Control
National Aluminate Corporation. Complete data on Nalco Spray Car availability and Nalco chemicals for keeping right-of-way weed-free.

620. Aluminum Tank Cars
Aluminum Company of America. Full information available on aluminum tank cars, used to transport all types of valuable liquids.

621. Door Locks & Miscellaneous Hardware
The Adams & Westlake Company. Complete information in catalog No. 150 on door locks, luggage racks, coats and hat hooks, and other hardware, including vestibule and window curtains, diaphragms, and "Breather" Windows.

622. Manganese Steel Railroad Crossings
United States Steel Company. Bulletin "Improved U.S.S. Manganese Steel Railroad Crossings" gives complete story of this crossing.

623. Non-Spin Wheel Hand Brake
Union Asbestos & Rubber Company. Literature available on the Type 3750-A Equipco Non-Spin Wheel Hand Brake.

624. Hungerford Cartoons
Edgewater Steel Company. Enlarged copies of Hungerford cartoon without advertising copy, used in December 3 RA ad.

625. Rust Preventative
Rust-Oleum Corporation. New catalog describes rust preventative for rolling stock, metal buildings, bridges, and signal equipment.

626. "How You Can Make America Strong"
Texas and Pacific Railway Co. Reprints of new series of T & P ads (Dec. 3 *Railway Age*). Also, the article "The Four Pillars of Freedom—Work, Save, Vote and Pray." *Please specify.*

627. Car Heating Systems
Minneapolis-Honeywell Regulator Co. Full information on benefits derived through use of Honeywell Car Heating System.

628. Weatherstat Control System
Minneapolis-Honeywell Regulator Co. Complete information available on how the Weatherstat Control System meters heat in exact proportion to need.

629. Story of National Bearing Division
National Bearing Div. American Brake Shoe Company. Catalog gives a complete and pictorial story of National Bearing Division facilities, from research through final precision machining.

630. Radiation System
Vapor Heating Corporation. Bulletin #562 gives factual data on the "B. T. Unizone" system of radiation, regulator valve #EW-968, & plug-in type thermostat.

631. Fork Lift Gas Truck
Yale & Towne Manufacturing Co. Detailed information available on the Yale fluid drive fork lift gas trucks.

632. Fork Trucks
Clark Equipment Company. Information on Clark attachments and fork-lift trucks in (1) "Basic Facts", (2) Condensed Catalog, and (3) Material Handling News.

633. Spur Cleats
Peyton Spur Cleat Co. Complete facts available on Peyton spur steel cleats.

634. Rubber-Tired Off-Track Switcher
The Frank G. Hough Company. Job Study #18 is a complete picture-and-word report on the uses of Payloader Switchers by a large brewery.

635. 50-Ton All-Steel Ore Cars
Chicago Freight Car & Parts Co. Complete construction details on the 50-Ton All-Steel Ore Car, showing the self-clearing feature.

636. Portable Hot Blast Heater
Western Metal Specialty Co. Complete details and unit prices on the Western Portable Hot Blast Heater.

(Continued first column reverse side)

Additional Product Information

This is a complete list of products mentioned in the advertisements in this issue. For more data on any product shown, circle the page number(s) on the reply cards below, fill in and mail. *Note:* If the advertiser mentions more than one product, or if more than one ad appears on the page, *write in* the name of the product you are interested in.

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On pages....., I want data on .....only!
product (s)

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Company .....

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LITERATURE & PAMPHLETS

637. Steel
Bethlehem Steel Company. Catalog No. 259 describes Bethlehem's Mayari R low alloy, high strength steel.

638. Diesel-Electric Locomotive Cranes
Industrial Brownhoist Corporation. Descriptive information regarding Brownhoist diesel electric locomotive cranes.

639. Railway Finishes
Sherwin-Williams Company. Full details on Kromik Primer, Metalastic top coats, and other finishes in the complete Sherwin-Williams line for railway service.

640. Multiple Tamper
Electric Tamper & Equipment Co. Complete information furnished on the Jackson Multiple Tamper that reaches beneath the rails.

641. Freight Car Truck
National Malleable and Steel Castings Co. Circular No. 5150 describes the National C-1 Lading-Conscious Truck.

642. Multiple Tool Tie Tamper
Railway Maintenance Corp. Descriptive folder gives complete information on the McWilliams multiple tool tie tamper.

643. Welding For Reclamation
Oxweld Railroad Service Company. Booklet F-7689 tells how one railroad uses welding to reclaim 175 different parts.

644. Ballast Cleaners
The Matisa Equipment Corporation. Details on availability of the 1951 Cleaner, the ballast cleaner reaching under the ties.

645. Brake Shoe Controller
American Brake Shoe Company. Full information on the American 3 in 1 Brake Shoe Controller.

646. Mechanical-Pneumatic Decelostat
Westinghouse Air Brake Co. Bulletin DL 2461-1 gives complete information on the Westinghouse AP Mechanical-Pneumatic Decelostat and explains how it stops wheel slides.

647. Fire Extinguishers
C-O-Two Fire Equipment Co. Complete information on C-O-Two's Dry Chemical Type Fire Extinguishers.

648. Couplers
The Symington-Gould Corporation. Circular No. 1245 describes the Type H Tightlock Couplers.

649. Solid Journal Bearings
Magnus Metal Corp. subs of National Lead Co. Bulletin #1001 gives complete factual data on AAR Solid Bearings.

650. Automatic Crossing Signals
Western Railroad Supply Company. Brochure 748-RA12 "Grade Crossing Safety is Your Business" explains the model 10 automatically operated crossing signals.

651. Communication Circuits
Automatic Electric Sales Corporation. Complete information available on the Lenkurt Type 42-C Carrier.

652. Creosoted Grade Crossing
Koppers Company. Folder on Koppers grade crossings contains construction details, technical data.

653. Portland Cement Pressure Grouting
Portland Cement Association. Complete data available in literature on pressure grouting offered by Portland Cement . . . *distributed in the U. S. and Canada only.*

654. Freight Car Coating
J. W. Mortell Co. Circular on Railway Insulmat, the 3-purpose coating used for interior walls of all types cars.

655. Car Bolts
Lewis Bolt & Nut Company. Samples, prices and full details available on Lewis' Sealtite car bolt.

656. G-R-S Automatic Switching
General Railway Signal Company. Pamphlet #695 describes the one-man complete-control G-R-S Retarder System and Automatic Switching.

657. Electric Trucks
The Raymond Corporation. Bulletin #703 illustrates and gives specifications for the complete line of Raymond Electric Trucks.

658. Carbon & Graphite Products
National Carbon Co. div. Union Carbide & Carbon Corp. New 20-page Catalog Section S-5005 describes and illustrates "National" Carbon and Graphite and "Karbate" Impervious Carbon and Graphite products, in grades from porous to impervious.

659. Electric Typewriter
Remington Rand, Inc. 4-page beautifully illustrated folder "Beauty and The Best" describes the Remington Electri-conomy Typewriter. Also, folder R7936 "How to Be A Super Secretary" ***on request.***

660. Fork Trucks and Conveyors
Baker Industrial Truck Div. Baker-Raulang Co. Case Study 3062 shows how Cleveland's Otis Terminal Warehouse uses fork trucks and conveyors, a concisely written story with action photos.

661. Lift Truck Safety
Towmotor Corp. "Plant Safety Kit" contains useful literature emphasizing safety in use of materials handling equipment, including traffic markers, safety instructions for Towmotor operators, and humorously illustrated bulletin board "safety tips".

662. Fasteners
Industrial Fasteners Institute. 16-page profusely illustrated booklet in full color, contains stories and technical data on fasteners.

663. Modern Cleaning Procedures
Kelite Products, Inc. Illustrated brochure explains how pH Control works to reduce cleaning effort, time and cost.

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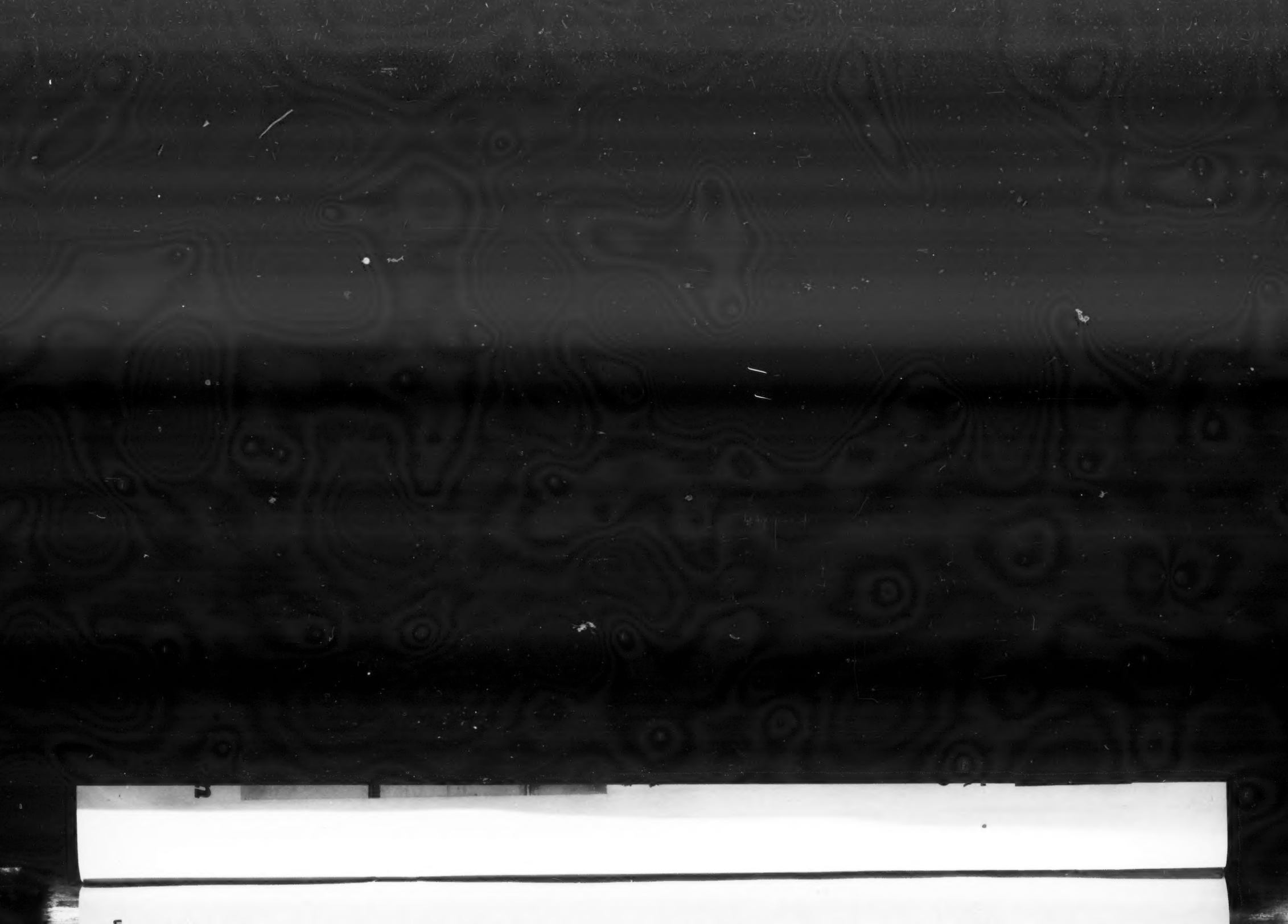

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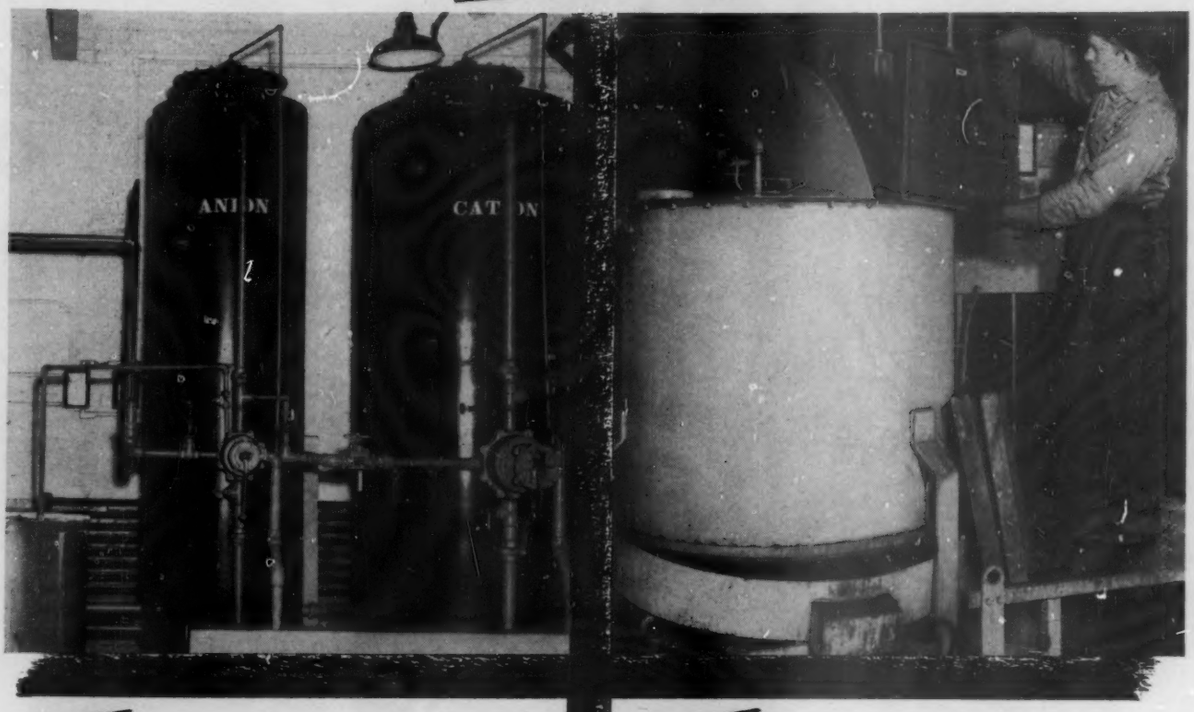

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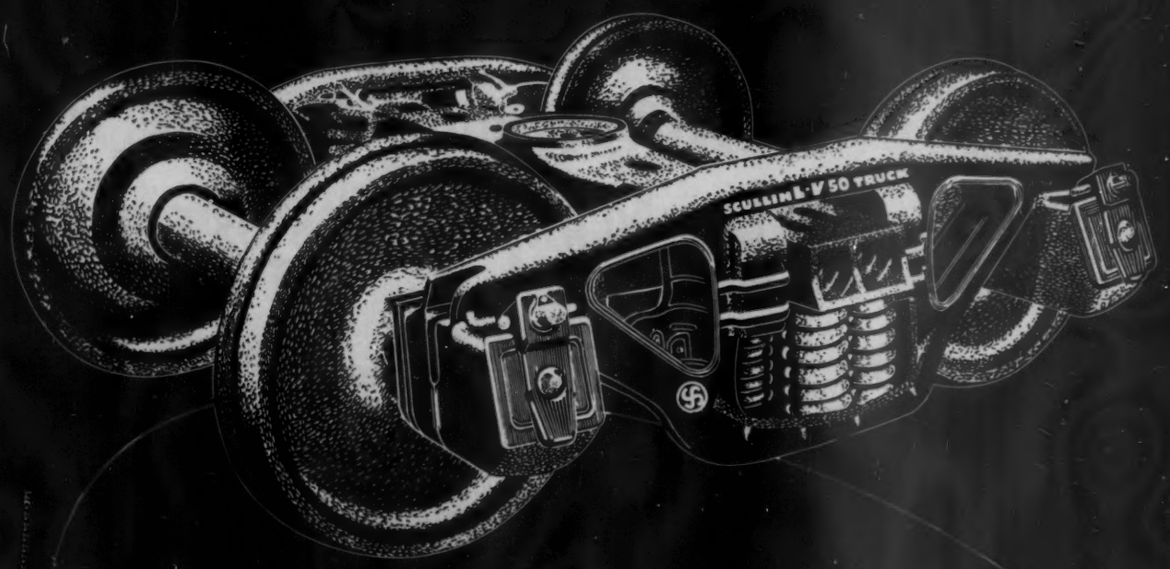

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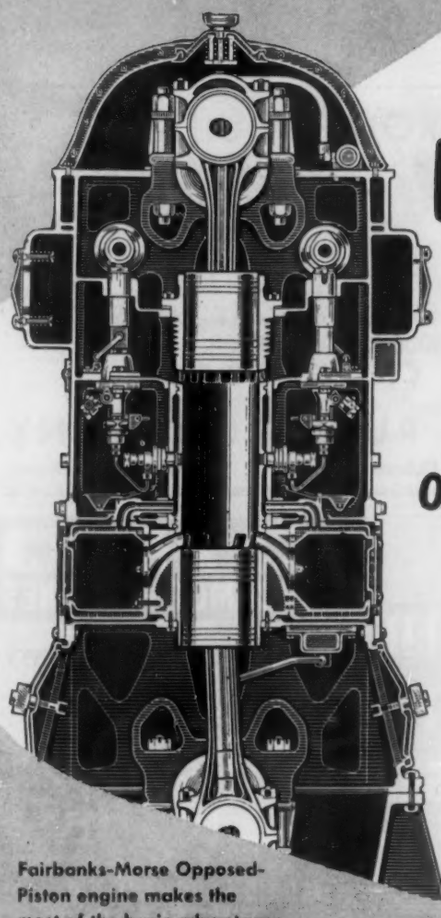

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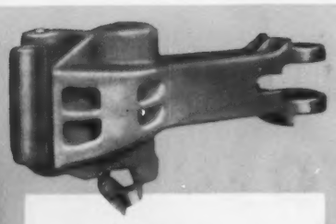

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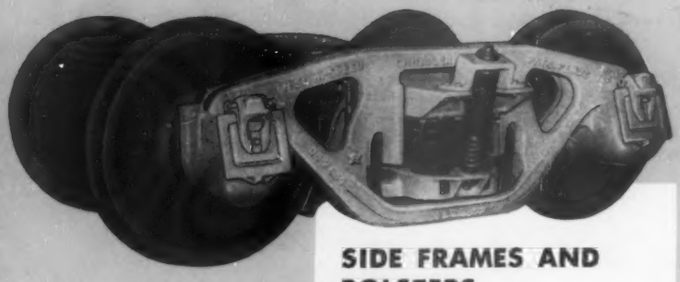

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